





## Downtime

by Chad

## Parodies lost, but Nexos won

FAME at last for our very own office systems firm, Nexos, in being mentioned in one of the glut of parodies of The Times published last week. It was listed among the firms to be bought up by Arals after being put on the market by NEB-slayer Keith Joseph.

Arals are also supposed to be buying St Paul's Cathedral and shipping it brick by brick to Mecca. Not very funny.

The same judgment can be made of most of the stories in the parodies, particularly the more ambitious one, "Not Yet The Times".

Stories included gems like "Government to abolish income tax", "Queen to divorce Duke" and "London's third airport to be in Regent's Park".

The whole point of parodies like this is that the stories should be just about believable, so that you are left with a nagging doubt that maybe they are in fact true.

"Not the New York Times," which came out during a strike last Autumn, managed this beautifully with such stories as the collapse of the Triborough Bridge because of sympathetic vibrations set up by hordes of early-morning joggers. Mind you, "Not Yet The Times" had

a good idea in the granting to Kerry Packer of exclusive rights to televise Parliament.

One obvious story they missed was that The Times management is going into business offering courses on how to conduct union negotiations.

Talking of spoofs, we at CW have been thinking of producing a special issue containing such stories as these: Keronix accuses Data General of trying to burn down its factory... IBM tries to appeal, not against a judgment, but against the judge himself in its anti-trust suit.

Larry Goehorn complains that General Automation is keeping him out of his own building with armed guards... Polish plug-compatible 1900s threaten ICL.

There's more... MPs claim that Christmas cards are being bought from Russia in exchange for computers... Xerox sells its minicomputer business and then hunts around for a minicomputer to put in its office systems.

What will be different about this spoof, though, is that these stories are all true! Who needs to employ humorists any more?



## Computer Board time warp

A PUZZLED reader has written to us about our Ten Years Ago feature of July 5, which reported that in 1969 the Computer Board was three years behind in its programme. Since the board has only been in existence for two years and 10 months, would it have gained two months by not coming into existence at all, our reader wondered?

With my usual conciseness

I have blown much dust off archives in investigating this and can report that in fact the story does make sense after all. It seems the board had originally planned to have 140 computer units installed by March 1970, but had been so seriously delayed that it was estimated this figure would not be reached until 1973. Sorry to ruin a good paradox.

## Pupils outstrip teachers in micro knowledge

by Malcolm Peltu



The dangers of the over-enthusiastic spread of micros in schools, the need for adequate backing and training for teachers, and the necessity for government promotion of micros in education were some of the subjects raised at the annual conference of the group known as Micro/minicomputers Users in Secondary Education, MUSE, MALCOLM PELTU (left) reports on the conference for Computer Weekly.

Tony Clements of King Edward VI Five Ways school in Birmingham.

A French-language instruction program was implemented on the school's computer network, which is based on a Hewlett-Packard HP 2000. And although adolescent boys usually run shy from French teaching, many were now opting



for computerised French at lunchtime instead of sports.

The newly elected chairman of MUSE, John Coll of Oundle school, said that over the next year MUSE should concentrate on trying to develop standards for software and systems development which would help to promote more exchange of material and push the appreciation of how computers can be imaginatively and effectively used in education.

A concern which was continually raised throughout the conference was how best to provide support for teachers who can see the way a micro or mini spark could start a forest fire of interest among the pupils, but who fear it will be difficult to provide reliable systems to meet the demand.

Few teachers have received any formal computing training and it is now common to find

that the students quickly become more proficient than the teachers.

Tinsley also highlighted a disturbing trend for teachers with computer know-how to leave schools, where their salary could be around £3,600, for more lucrative jobs in industry. So, even the little expertise that exists in the educational service is being drained away.

A former MUSE chairman, Roy Atherton of the Birmershe teacher training college in Berkshire, was pessimistic about the prospects for significantly increasing training in the use and understanding of computing and microelectronics.

Owing to the falling school population, teacher training is generally being cut back, so even if there were a significant increase in computer training, for new teachers it would take a long time to make a widespread impact in schools.

Both Tinsley and Firnberg stressed that an external framework of support needs to be created to assist teachers, with Tinsley emphasising the need for dedicated support from the local education authority and Firnberg offering a national perspective.

Tinsley, who has worked for IBM and the National Computing Centre, has played an important part in developing, in Birmingham, one of the country's most comprehensive support schemes for computer education in schools.

The Birmingham press has a computer centre backed by computing specialists to provide computing capabilities for schools, mainly terminal-based at present, and also to develop a structured approach to introducing computer-assisted learning into schools.

Birmingham has tailored the ICL Computer-Assisted Management Of Learning (Camol) system, which offers a method of teaching children using interactive terminals and recording their results. He warned, however, that it had cost about £5,000 to develop a Camol service for an "A" level Physics project.

Birmingham has now employed a full-time mathematician and a part-time "Camol driver" to create Camol, a Computer Assisted Learning Module service. This will enable specific educational modules to be developed and then "plugged in" within a Camol framework.

In terms of computing capabilities, Tinsley would like to see a coherent approach starting with specially developed desk-top aids and moving through micro and mini to school capabilities to local authority and national information services such as the Open University computing service, Prestel, local polytechnic and public library facilities.

He also foresees a time when computing takes education out of the school, and Birmingham already conducting an experiment in home-based teaching for sick children using a computer terminal.



Atherton stressed that individual national policies must be developed to ensure that the use of computers is a cost-effective way.

He said he would like to see a rounded government programme encompassing a whole educational system rather than departments and agencies such as the Department of Industry and Manpower Services Commission and local education authorities.

For the MUSE members there is a clear national need for motivating wider awareness of techniques and uses of computers, microelectronics and telecommunications. The LEA government recognised the need and during its last year began to pour large sums into giving priority to the development of micro awareness.

There is a fervent hope among MUSE members of all political shades that the current government also sees the need to special attention being given to the stimulation of technology training, although they are acutely aware that teachers' jobs being threatened by other effects of government cuts. It is going to take a long time to get the education minister to single out computer education for special attention from the public expenditure cuts.

And if the Department of Education's £12.5 million is cut, there are many who fear the creation of an educational world in which schools with "access" to microcomputers are able to buy a backing, a microcomputer power, and the majority of State schools starved of one of the most exciting and exciting teaching aids ever developed.

## MUSE Letter planned

BOOK publisher Longmans is to publish the MUSE newsletter, MUSE Letter. Longmans is also interested in the possibility of publishing a series of programs, but some co-ordinated method would have to be agreed on program and documentation standards before such a venture becomes feasible.



## More money for multi-micro project

THE success so far of David Aspinall's multi-microprocessor project at Manchester has led to confirmation by the Science Research Council of another four years' support for the work and further funding amounting to £250,000.

Now that the basic hardware, 16 Intel 8080 micros, is working, staff at the University of Manchester Institute of Science and Technology are praising the project with performance trials and development of languages.

The project, run jointly by Aspinall, Erik Dagleas of UMIST Electrical Engineering Department, and Roy Dowling of University College Swansea where Aspinall previously worked, is part of the SRC's Distributed Computing Programme (CW, October 12, 1978).

The machine, consisting of 16 interconnected micros, has been given the Welsh name CYBA ("cubah") and is intended as a research vehicle for developing multi-processor systems and investigating the efficiency of such techniques compared with conventional computers. The management of concurrent processes and the size of contention problems over, say, shared main memory are among the matters being investigated. A hardware monitor is being built which can analyse performance down to the machine cycle level.

If multiple micros turn out to be more efficient for many processes than big time sharing machines, it is hoped that the project will be able to identify the reasons why and formulate design rules for such systems and the global memories that will go with them.

One such experiment has already been performed, Aspinall told Computer Weekly, in which looping processors were added in one at a time to see how much their occasional accesses to central memory interfered with each other. Performance degradation with all 16 was less than 1%.

Dowling at Swansea is working on languages and operating systems. A special intermediate-level language called CYBA-L has already been designed and it is hoped that this can be issued to outside users by the end of the year. A communications link to CYBA is being laid on so that other workers around the country will be able to carry out their own experiments without building new hardware.

One possibility is to use CYBA for a multiple-pass interpreter, doing all the passes simultaneously on different processors. It is also possible to emulate different interconnection structures, such as buses and rings, on CYBA. Other upcoming research work includes reliability by redundancy, graphics, and sorting.

Memorex lead shrinks

FINANCIAL figures published by the two top suppliers of IBM-compatible peripherals, Memorex and Storage Technology, show that Memorex is still a lot bigger than Storage, but that the latter is growing considerably faster and is far more profitable.

The figures from the two firms both relate to the second quarter of 1979. Memorex revenue was more than \$181 million compared with less than \$120 million for Storage, but the Memorex figure was only 14% up on the same period last year while revenue at Storage grew by a formidable 78%.

The difference in net profit growth between the two companies was even more dramatic. Memorex net profit grew only 3% to \$10.6 million, while Storage saw an impressive 73% increase to \$9.3 million.

Reasons for the big difference

in growth include the fact that Storage has only recently started to exploit European markets like the UK and Italy, while Memorex is an old established company. At the same time, Storage believes that it has been far more successful with its IBM 3350 alternative than Memorex.

Robert Wilson, president and chief executive of Memorex, blamed the pressures of inflation, energy and recession as being partly responsible for the effect on Memorex's profits, and has also cited IBM's disc drive price reductions.

Wilson made no mention of the possible effects of Storage Technology on Memorex business, but he admitted that Memorex net profits for the whole of 1979 would not reach the 25% increase previously indicated to be achievable.

However, National added that it was carrying on with the suit because it might want to enter the DEC compatible market.

DEC won a motion to have the case transferred from the Federal District Court in San Francisco to Concord, New Hampshire, which is near its headquarters in Massachusetts. The transfer of the case delayed the completion of the litigation.

National said that the death of the System 200 programme was assured earlier this year when

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## NCC to train real time programmers in joint scheme with MSC

DESPITE likely cuts in its budget, the Manpower Services Commission is to press ahead with a new joint scheme with the National Computing Centre to train real time programmers.

The scheme will provide for the training of up to 200 programmers a year on 24-week courses prepared by the NCC. The courses will probably be run at local polytechnics, and funds to pay for staff to attend them will be channelled to employers via the Industry Training Boards.

Assuming that grants are made at about £70 per person per week, the annual cost of the scheme could be about £400,000. The government is reported to be pressing for cuts in the MSC's budget, of between £300 million and £450 million over the next three years.

However neither the new scheme nor the existing Threshold programme would be affected, said an MSC spokes-

man, should the cuts be implemented. He stressed that the Press reports were "speculation".

A substantial part of the new NCC courses will be devoted to the Mascot methodology, which the Ministry of Defence has adopted as a standard for real time applications.

Mascot will not be the only methodology taught on the courses, the need for which emerged following a joint MSC-NCC investigation of the shortage of real time programmers in addition to the MSC scheme, the NCC is close to

completing plans for two further co-operative ventures in real time training.

The first, to be undertaken under contract to the DoI, is to create a course for managers of real time programming projects. This would be similar to the existing Corol 86 programming course, providing materials for use by companies in-house.

The second NCC project is to create a new HND course in computing with an emphasis on the real time field.

The NCC hopes to hold a pilot course in this field in November or December.

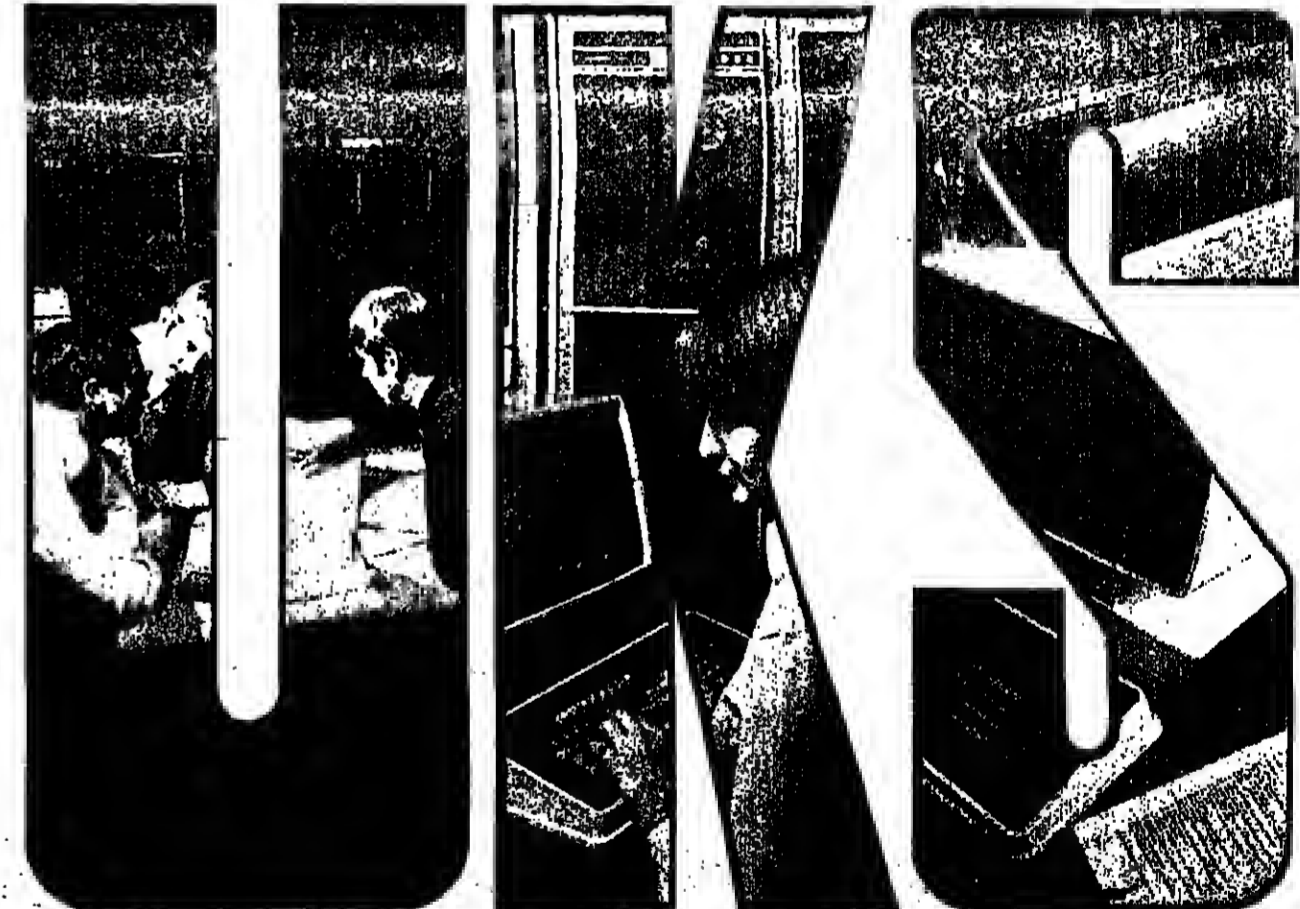
## VME/B for National Savings

RATHER than use DME/ System 4 on 2980, the Department of National Savings has decided to convert straight to VME/B at its Glasgow and Blackpool installations. In Glasgow, where the National

Savings Bank has twin System 4/72s, a dual processor 2972 is to be installed, while twin 4/72s in Lytham St Annes which administer the Premium Bond Register and Save As You Earn contracts, are to be replaced by a 2976.



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## OP SPOT

### Altering schedule under IBM OS

THE IBM OS operator is able to alter the work schedule by delaying the running and printing of jobs. He achieves this by means of two commands — Hold, and Release.

In relation to the system input queues, he uses them to defer individual jobs or entire work streams. To place a single job in a hold state, he enters

H Jobname and to release the job for processing by the system

A Jobname

On certain occasions, it is necessary for the operator to hold entire queues. For example, if one or more of the system's tape drives are under service, it may be necessary to hold the job stream comprising heavily tape-dependent work. Command

H Q=queue class and when the tape drives are available again, he types in

A Q=queue class

Similarly, staff shortages might mean that the console operator had to leave his station.

On such occasions, he is often faced by mounds of system requests on returning to the console. By holding the appropriate queues he can prevent this and so make his task easier.

Under IBM OS, poor scheduling sometimes leads to main storage fragmentation with the result that small areas of it become unusable. To overcome this it is necessary to bring the system to a standstill, and the procedure involved includes holding all system queues, as follows:

HQ To release them again, the operator types

AQ Hold may also be used to defer the printing of jobs which are on the system output queues. However, in my experience, this is not a common practice.

IBM OS operators usually reschedule such jobs by modifying the output classes to be served by each of the systems output writers.

### Bevan moves into management

RUSS BEVAN, former chairman of the now disbanded Operam, has moved into management. He is head of operations at Rank Hovis MacDougall's installation in Bristol.

Bevan gained the position after going through a RHM management training scheme (Op Spot, May 10), part of which involved filling in for managers at the company's sites all over the country.

His installation, which runs work for RHM's bakery in Bristol, has an ICL 2803, with a small team composed of two operators, and job control and data prep staff.

Obviously enjoying his new role, Bevan said, "I am very pleased to be off shift work. Much of the work I do is similar to what I did as a shift leader, with the difference that it's recognised and I get paid more."

Bevan and his family still live in their native Coventry, but he hopes to find a house in Bristol soon.

By Bernard Allen

### Another tip on the 'quiet phone'

IN response to a hint regarding the use of telephones with a volume adjustment facility (Op Spot, July 12), Jeff Finney, shift supervisor at Shell in Manchester, comments "At the installation where I am employed, we have found that

machine noise is also amplified, thereby reducing the advantage of such telephones. The Post Office does, in fact, market a handset which has a custom button. This cuts out the microphone and so prevents machine noise being picked up."

## Obstacles on an op's career path

OPERATIONS staff face a real problem in relation to career progression — a fact well illustrated by the case of former operator Terrence Tootill (see this week's Programmer Notes). After some five years in operations, Tootill was unable to find a position which he felt would make use of and reward his hard-won skills. He tried to transfer to his site's programming section, but was unable to do so.

So he left his company, and with a view to moving into programming, went on a TOPS

course. Despite this, and the fact that he holds the appropriate City and Guilds certificates, Tootill is still unable to find a job as a trainee programmer.

Well, in my view any operator who wants to become a programmer should be given the opportunity to do so by his company. A good method is to let the person concerned work in systems and programming for a trial period of a month or so — this gives him the chance to see what the job involves and enables the department to find out if he is suitable.

But, to me, the fact that staff feel the need to swap from operations to programming is a sad reflection on the state of the industry. It indicates that managers in general just are not aware of what operators have to offer in terms of skill and experience.

By working in the operations department, staff gain a wide range of practical experience. This covers the needs of hard-

ware and software, and dealing with users, something which can be a bit trying at times.

And shift leaders, in particular, must learn to use supervisory skills if they are to get the best out of their team of operators. They must also be able to work under pressure.

Bearing all that in mind, an operator's career path should lead into technical support or management, even if the time means leaving the operations department.

And the fact that more and more sites are installing other systems opens up another potential outlet for operators. In fact, working in the TP section should prove interesting and useful upon their experience of the computer room.

Some sites recognise the potential that exists within their operational staff and encourage their staff with career progression in mind.

It's a pity that more don't.

### HINT OF THE WEEK

#### Card reader can save console work

CARD readers as a means of entering system commands in the IBM OS/VS environment is the subject of a hint from Colin O'Keefe, assistant operations



O'Keefe

officer at British Airways in London.

In general, consoles are the best medium for issuing commands, but O'Keefe points out that this is not always the case.

He writes, "It frequently transpires on OS/VS systems that very lengthy commands have to be entered, sometimes at short notice, when the operator doesn't have time to refer to the operating guide."

According to O'Keefe, such commands should be punched on cards when the operator has a moment to spare. This will save him a lot of console work later on.

He continues, "A very good example for this could be where discs which are normally accessed through two channels, have to be accessed through one, possibly for emergency maintenance."

He gives the following example:

And goes on, "One would need for each drive on the channel to be offline. Top channel back online would require a deck of similar punched cards with the appropriate parameter changed."

#### Super Shift places the blame for wavy lines...

STEVE, George and Dave, better known as "Super Shift" at Smedley HP Foods in Leamington Spa, Warwickshire, have come to the defence of the "dear old" ICL 1933 printer.

They comment, "Until December, 1978, we had an ICL 1933 printer running 24 hours a day, and experienced none of the so-called wavy-line print problems, simply because the tension controls had been set up properly by the operator."

"We have also found this to be the case at other sites at which we have been employed. In other words, the wavy-line print problem is most definitely an operator as opposed to a hardware fault."

The idea of a team billing as Super Shift appeals to me of the time I worked at a site where two operators employed on each shift.

I christened our shift as Dynamic Duo, because we always seemed to find the work more quickly than others. This, I might add, was due to the expertise of our leader, who was very good at the job.

Come to think of it, I remember a number of operations frustrations, but none that spring to mind include Lightning, Rubber Duck, or any of the other names I have used.

## IDPM wants 12 top firms to sponsor a full-time secretary-general

A CALL for a dozen top firms in the computer industry to sponsor a full-time secretary-general for the Institute of Data Processing Management with £1,000 a head was made at the Institute's annual meeting last week.

London branch member David Scott-Holts said that precedents for this already existed in the US. Spreading the sponsorship would prevent any one sponsor from having a dominant role in the Institute's affairs.

He said a major stumbling block in making the job full-time was job security. He suggested that, following the lead set at British Leyland with Sir Michael Edwards, the job holder should be given leave of absence from his old job. This would have the advantage of protecting pension rights, etc.

The meeting felt that a full-time secretary-general was a good idea provided the finances were available. The present job holder, Ted Cluff, said that it would be up to the Institute's council to take action by special resolution and to draw up a contract.

A call was made by the chairman of the London branch, John Woodgate, to avoid having too many grades of membership in the Institute. Woodgate, who is also a member of the British Computer Society, said he had voluntarily taken a drop in the Society grade from fellow to associate as he felt there was little to be gained from remaining where he was.

On this theme, Cluff said that plans to appoint senior figures in the data processing industry to

the rank of fellow had never been implemented by the Institute Process Council, and had not been discussed since the merger between the Data Processing Management Association and the Institute of Data Processing.

The Institute's second branch will be inaugurated in Birmingham on Tuesday, October 9, at the Chamber of Commerce in Hagley Road. The meeting is being organised by the Midlands Regional Council which hopes to set up further branches in Coventry, Leicester, Nottingham, Wolverhampton and Worcestershire. The guest speaker in Birmingham will be Alan Watson, marketing manager of Ventek, who will talk on automated offices and the future of data processing.

### Library plans electronic journal

AN electronic journal, providing scientists with the means of circulating research papers, among themselves without the delays and complications of a printed magazine, is being planned by the British Library.

The scheme would be along the lines of the Electronic Information Exchange System in the US (CW, April 26) with which the Library wanted to co-operate until thwarted by difficulties with Post Office common carrier regulations.

Detailed specifications have not yet been fixed, but the journal will probably use one of two

software packages available from Infomedia in California, called Planet and Notepad. These both run on PDP-10s, and it is proposed to use the PDP-10 at Hatfield Polytechnic initially. Participants would connect to the machine either by ordinary dial-up terminal or through EPSS, and PSS when it starts.

Authors would type articles on their terminals, to go to a central store for checking by the editor, refereeing, and finally "publication" by making them available to be read by all participants. Facilities for joint authorship would be provided,

and a means of conferencing whereby comments could be added one after another to a single file.

The subject covered by the initial journal will be Computer Human Factors, and its editor is to be Professor Brian Shackel of Loughborough University Department of Human Sciences. If this first pilot project is a success, it is hoped to expand it.

Advising on the choice of software is Peter Kirstein, of University College London, who is chairman of the British Library's New Technology Group.



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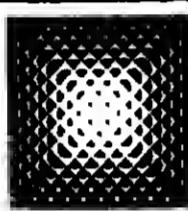
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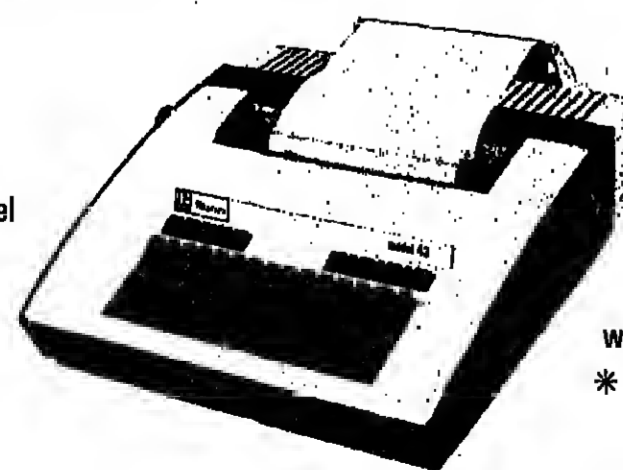
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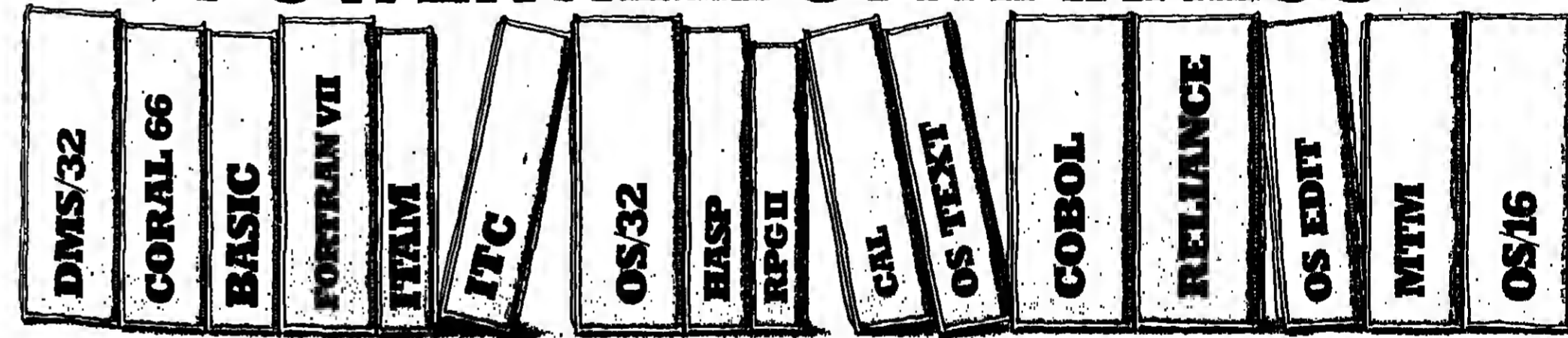


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# INTRODUCTION TO PASCAL

## Special features of the language

### Part 6

THIS week we look at two of the features that make Pascal special, the CASE statement and the set facility.

#### Times on cards

Up to now the exact format of times on the input has been left vague. The nice thing about Pascal's free format input is that the specification need not be too exact. In particular, fixed columns for items are not used; these only lead to untraceable errors. Presumably, the times will be punched up from forms filled in by the employees (Blaze Inc is not a fully automated concern). Get any group of employees to write out the day, hour and minute and you're bound to get variations such as

TUE 8:30 TUES 8:30 TUE 08h30

Not wishing to regiment intelligent beings, we can let these be punched up as they are written and, surprisingly, the program will be not one iota more complicated than if we'd drawn restricting little boxes on the forms.

#### Multi-Way Selections

Suppose a higher level procedure has positioned us at the start of a time, with the first character of the day in the variable ch. Depending on this character, we want to set up the day com-

ponent of a time, which was defined in a previous article as equivalent to

```
TYPE time = RECORD
  day: (mon,tues,wed,thurs,fri,sat,sun);
  hour: 0..23;
  min: 0..59;
END;
```

Pascal has just the construct for this and we can say

```
CASE ch OF
  'M': day := mon;
  'W': day := wed;
  'F': day := fri;
END;
```

The characters listed on the left are the labels which indicate which one (and only one) of the statements is to be executed. That was the easy bit: what about the ambiguous 'T' and 'S'? Here we have to look at the next character before deciding and we have

```
'T': BEGIN
  read(ch);
  IF ch = 'U' THEN
    day := tues;
  ELSE
    day := thurs;
  END;
```

The BEGIN and END bracket off the read and the IF-THEN-ELSE as one statement. The same can be done for 'S'.

#### Sets

The CASE statement does not appear in any other language in this nice form although Algol 68, PL/I, Algol W and even Fortran have some form of multi-way selection. Another feature that is unique to Pascal is the ability to manipulate sets. We can construct sets of simple items just as one would in school arithmetic, for example

{oranges, apples, bananas}.

Square brackets are used to enclose a set and for membership we use IN in place of the Greek  $\in$ . Thus we can ask

IF fruit IN {oranges, apples, bananas}

The usual operations on sets are also available, namely

```
union      +
intersection  *
difference -
inclusion  <
```

One of the nicest uses of sets I have seen is in the Belfast Pascal Compiler written by Jim Welsh, Colleen McShane and Colum Quinn in 1975. While generating code, they had to keep track of what registers were currently in use. The compiler had a type definition

TYPE setofregisters = SET OF 0..7

(for ICL 1900s) and statements such as the following made it very readable:

```
thoseusable := thoseavailable * {4,5,6,7} - thoseprohibited;
IF thoseusable <> [] THEN ...
```

where [] denotes the empty set.

#### Nonexistent days

Getting back to the read times problem, we see that sets are very useful for catching errors. If a CASE statement is provided with a value which is not listed, an execution error occurs. Of course, our program is more sophisticated and has its own error routine, so we should preface the case as follows:

```
IF ch IN {'M', 'T', 'W', 'F', 'S'} THEN
  CASE ch OF
    ...
  END
ELSE error(1);
```

### NEXT WEEK: Booleans are great — how to use two-state and multi-state variables

## Pascal compilers released for VAX and other systems

NEW Pascal compilers have been released for the Digital Equipment VAX-11/780 and for Data General Nova and Eclipse systems running under AOS. First heard of two months ago (CW, May 31), DEC's native mode compiler for the VAX is re-entrant and has several features including separate compilation of modules.

Significantly, it has been launched in the UK with an attractive discount for academic and other institutional users; they will pay £1,000 as opposed to the standard licence fee of £3,375.

The DG AOS compiler comes from Rhintek Inc, of Columbia,

Maryland, and is a re-implementation of the RDOS version launched last year. The generated code is said to run twice as fast as the equivalent Fortran IV and the compiler costs \$1,250 in the US.

Keele University has implemented an interpreting Pascal system for the Digico Micro 168,

### By Dr Judy Bishop



Two features that make Pascal special are the CASE statement and the set facility. Dr Judy Bishop looks at these in the sixth instalment of her 10-part series, Introduction to Pascal.

Judy Bishop is a lecturer in computer science at Witwatersrand University, Johannesburg, which this year switched from Fortran to Pascal for undergraduate teaching.

Dealing with days should end by returning to the higher-level procedure in the same state as it was left, i.e. the start of the item. Thus we include

```
REPEAT
  read(ch);
UNTIL ch = space;
```

which will skip the rest of the day's spelling, neatly overcoming the variations of TUE, TUES and even TUESDAY. The IF, the CASE and the REPEAT will form a "building block" procedure called readday referred to in readtime. Notice the use in Figure 1 of sets for checking subranges. Number is a local variable which will accept perhaps erroneous hours and minutes before they are copied into the time.

```
PROCEDURE readtime (VAR thistime: time);
VAR
  number: integer;
BEGIN
  REPEAT
    read(ch);
  UNTIL ch = space;
  readday(thistime);
  WITH thistime DO
    BEGIN
      read(number);
      IF number IN [0..23] THEN hour := number;
      ELSE error(2);
      read(number);
      IF number IN [0..59] THEN min := number;
      ELSE error(3);
    END;
  END;
```

Figure 1. A procedure to read times

#### A warning

Sets could revolutionise programming but unfortunately not all implementations implement them sufficiently well. Unfortunately there is a restriction on the largest element that can be put in such as 63 or 47 and this sometimes prevents one from having sets of characters. Furthermore, Arthur Sale of Tasmanian Universities has pointed out that some compilers do not like unnamed set integers as in [0..59]. I would like to appeal to any implementers reading this to make sure their compilers implement sets as the powerful feature it is meant to be and remove these restrictions.

```
PROCEDURE readday (VAR thistime: time);
BEGIN
  WITH thistime DO
    IF ch IN {'M', 'T', 'W', 'F', 'S'} THEN
      CASE ch OF
        'M': day := mon;
        'T': BEGIN
          read(ch);
          IF ch = 'U' THEN day := tues;
          ELSE day := thurs;
        END;
        'W': day := wed;
        'F': day := fri;
        'S': BEGIN
          read(ch);
          IF ch = 'A' THEN day := sat;
          ELSE day := sun;
        END;
      END
    END ('case')
  ELSE error(1);
  REPEAT
    read(ch);
  UNTIL ch <> space;
END;
```

Figure 2. A procedure to read days of the week

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# Appointments

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### SOFTWARE DEVELOPMENT MANAGER

#### SOUTH BUCKS

c. £10,000 + car

This position presents an outstanding opportunity for either a person experienced in Systems Programming or a Departmental Programming Manager with a technical background, to take responsibility for an expanding Software Development Team.

Joining a specialist group, the Software Development Manager will lead small teams developing a range of software products on IBM 370 and 4331 equipment. Liaising closely with technical support and user areas to interpret and define requirements, the successful candidate will contribute to the design of future products in addition to identifying improvement potential in existing systems.

Candidates for this challenging role will have a strong IBM ASSEMBLER background, preferably gained at a DOS installation, and possess the personality to motivate and control a fast growing staff of technicians.

This position offers an ideal opportunity for a senior SYSTEMS PROGRAMMER who is seeking a positive career advancement into management whilst retaining a full technical involvement.

To cope with the ever-increasing demand for its products and to maintain its leading position in the software field, the Company has ambitious expansion plans, thus presenting the person appointed with considerable scope for career progression. A good starting salary is further enhanced by a company car and first-class conditions of employment, including generous relocation expenses where appropriate.

REF S1/D208

MYRIAD APPOINTMENTS LIMITED  
30 Fleet Street London EC4Y 1AA  
01-353 0981 24 HRS.

## SYSTEMS ANALYSTS

### AYLESBURY

We require a Systems Analyst, with at least two years' experience, to work primarily on accounting applications. Knowledge of Prosper or other modelling packages would be particularly useful.

We currently operate an ICL 1903A and a 1901T and are evaluating new equipment.

Salary in the range £5487 to £7434 per annum depending upon age, qualifications and experience.

Four weeks' holiday. Free life assurance and generous sick pay arrangements. Subsidised car. Active sports and social club. Discount on staff purchases.

Further details and an application form may be obtained from: Mrs. Ann Giffin, Rediffusion Central Services Ltd., P.O. Box 80, Gatehouse Road, Aylesbury, Bucks HP19 3DU. Telephone: Aylesbury (0296) 84321.

REDIFFUSION

## Systems and Finance Manager

Home Counties c. \$9000 + Car

Our Client, a European vehicle manufacturer rapidly expanding operations in the UK, regards this as a key position in relation to their future profitability. The position therefore offers every opportunity for career advancement.

You will be responsible to the Company's Parts Director for the efficiency of systems within the Parts Department. The requirement is for a graduate with a good quantitative background, possibly in O.R. or Management Sciences.

Tasks will include development and introduction of new systems for inventory control, pricing, market analysis and forward planning—assisted by a statistical analyst. The work will involve originating computer based models for pricing and forecasting.

Currently using I.B.M. hardware in-house, augmented by a bureau service, the Company also plans to go on-line to a mainframe computer Head Office in Europe.

Particular experience would be helpful, but it is not essential. Experience of computer systems and models however, is vital. Applicants may come from the Motor Industry or from any commercial or financial background with computerised systems.

In addition to the salary and 2 free car benefits include pension, life assurance, free medical insurance plus relocation assistance if necessary.

Applicants, male or female, should telephone Rory Burke on 01-903 9477, quoting Ref. M/1721. Or write to Aplin Phillimore Associates, Circle House North, 69-71 Wembley Hill Road, Wembley, Middlesex HA9 8BL.

APLIN PHILLIMORE

MOTOR INDUSTRY EXECUTIVE SEARCH AND RECRUITMENT CONSULTANTS

## COMPUTER WEEKLY

Classified Department, Dorset House, Stamford St, London SE1 1LU  
Box Numbers: Should be addressed to the box number in the advertisement in Computer Weekly at the above address.  
Classified Rates: £100 per year. Single copy £1.00. 11 = £11.00. 26 = £26.00. 52 = £52.00.  
Copy Deadline: 5.00pm Monday prior to Thursday publication date. Complete artwork up to 12 noon Tuesday. Advanced space reservation is advisable.

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## Special travel arrangements to visit Telecom '79 (Geneva)

IPC Electrical-Electronic Press Ltd., the world's largest publishers of computer, electrical and electronic journals, in association with Commercial Trade Travel Ltd. have arranged special visits to TELECOM. The cost includes—travel by

scheduled airline from Heathrow to first class hotel accommodation \* arrival and departure transfers \* admission to the trade fair \* services of an experienced tour manager. The programme comprises of the following tours.



To obtain a brochure and booking form tick the box against the tours in which you are interested, complete the coupon and post to the exclusive appointed travel agent, Commercial Trade Travel Ltd., Carlisle House, 9 Southampton Row, London WC1. Telephone 01-405 8888 or 01-405 6489.

TOUR A - (3 nights Hotel Beau-Rivage) September 20-September 23. Fully inclusive price £248.  
TOUR B - (3 nights Hotel Beau-Rivage) September 23-September 26. Fully inclusive price £248.  
TOUR C - (6 nights Hotel Beau-Rivage) September 20-September 28. Fully inclusive price £348.

Please send detail of the tour indicated above.

NAME: \_\_\_\_\_ COMPANY: \_\_\_\_\_

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CW

### ULSTER POLYTECHNIC

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School of Computer Science

### LECTURER II SENIOR LECTURER LECTURER II OR SENIOR LECTURER

Full-time two-year appointment

Salary Scale: Senior Lecturer £8897-£7701/£8283  
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Applications are invited for these two new posts in the School of Computer Science. The School runs an Honours Degree Course in Computer Science (Data Processing), a Diploma in Computer Education and HNC Course in Computer Studies, and BCS Professional Courses. It also contributes to Degree Courses in Business Studies. Accounting and other courses at higher degree, degree and diploma level throughout the Polytechnic.

Specialisations which are of particular interest for these posts are: Data Processing, Systems Analysis, Management Information Systems, Database Computation and Theory, Computer Architecture.

Applicants for the posts should be graduates with relevant industrial experience. Research and consultancy are encouraged.

This Polytechnic is a direct grant institution with an independent Board of Governors. It opened in 1977 and has a student population of some 7,600. It has extensive new purpose-built accommodation, including 760 residential places on the 114-acre campus overlooking the sea at Jordanstown, a pleasant and quiet residential area. There is a relaxing atmosphere with ample

Further particulars and application forms which must be returned by August 27th may be obtained by telephone 091-271111 (0231) 861471. Fax 091-271111 (0231) 861471.

The Establishment Office, Ulster Polytechnic, Shore Road, Newtownabbey, Co. Antrim BT37 009.

# IMS

## OUTSTANDING OPPORTUNITIES IN THE U.S.A.

Rendek Corporation is the American sister company to Rendek Limited in England and Rendek Nederland in Holland.

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Rendek Corporation specialises exclusively in database/datacommunications consultation and project development, particularly IMS, Shadow II & CICS, for our client base that covers the whole country and is controlled from our head offices situated in Boston and San Francisco.

Our priority future plans for the company include the diversification into the development of software and the forming of a comprehensive DB/DC education group.

The expansion we have planned for the immediate and forthcoming period requires the recruitment of experienced IMS personnel with expertise in any area of the DB/DC field to join one of the project teams in various parts of the U.S.A. Our clients encompass the banking, publishing and manufacturing industries and you can be certain that they will use your skills to their fullest extent.

Salaries will be above-average ranging from \$20,000-\$40,000, exclusive of the comprehensive benefits package offered. Interviews for both immediate and future positions will be held in early August so please contact us immediately.

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Rendek Limited  
100 New Bond Street, London W1Y 9LF  
Telephone 01-828 5438

## NATURAL ENVIRONMENT RESEARCH COUNCIL NERC CENTRAL COMPUTING GROUP ASSISTANT SCIENTIFIC OFFICER

The NERC Central Computing Group is a leading research unit in the Natural Environment Research Council. The group is seeking an Assistant Scientific Officer to work on the development of a new computer system for the analysis of meteorological data. The post will involve the development of software for the analysis of meteorological data and the operation of the computer system. The post is based at the NERC Centre for Environmental Modelling, High Wycombe, Bucks. The successful candidate will be required to have a degree in a relevant subject and experience in the use of computers. The salary for this post is £10,000 p.a. plus a 10% allowance for the cost of living. The post is open until 1st September 1979. Applications should be sent to the NERC Central Computing Group, High Wycombe, Bucks. HP12 3RH. Tel: 0494 444111.

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£6000

**Systems Analysts**  
Engineering group with interests throughout the UK wishes to recruit additional systems analysts. Experience of general business applications is required and some experience of IBM hardware/software useful. (Ref DR/33)

£6000 + review pending

**Senior Programmers**  
Our client seeks senior programmers with 3 years or more experience. This will have been gained in a medium sized IBM or ICL installation. (Ref DR/34)

£6000

**Programmers**  
Our client is looking for programmers with not less than 2 years COBOL. Honeywell experience an advantage. First-class prospects. (Ref DR/35)

£5500

**Junior Programmers**  
This client wishes to recruit junior programmers with about 2 years COBOL experience. Good prospects. (Ref DR/36)

£5000

### WEST YORKSHIRE

**Systems Analysts**  
Additional systems analysts are required with 2 to 3 years experience, to work on development projects including accounting, production control and sales. (Ref DR/37)

£6250

**Senior Programmer**  
The successful candidate will be working in a team supporting and enhancing major commercial systems including sales accounting and payroll running on IBM 370. 3 years COBOL required. (Ref DR/38)

£6000

**Programmers**  
A progressive ICL user urgently requires additional programmers. Experience necessary is 1 year COBOL. This client can offer successful candidates excellent career development prospects. (Ref DR/39)

£6000

### NORTH YORKSHIRE

**Young Programmer**  
A medium sized ICL installation in pleasant country district seeks programmer with 12 months COBOL on any machine. Client will negotiate your type work. (Ref DR/40)

£Neg + benefits

### WORCESTERSHIRE

**Systems Analyst**  
A well known international company requires a systems analyst with around 3 years commercial systems experience. Previous database experience an advantage. (Ref DR/41)

£6250

### BEDFORDSHIRE

**Programmer**  
Experienced COBOL programmer required by progressive 370 installation. 3 years experience required preferably including CICS and DOS/VS. Some supervisory responsibilities. (Ref DR/42)

£6000 +

Interested? Send coupon or phone Cathy Scott

NAME \_\_\_\_\_ AGE \_\_\_\_\_  
ADDRESS \_\_\_\_\_  
PHONE HOME \_\_\_\_\_  
BUSINESS (will be used discreetly) \_\_\_\_\_  
YRS ANALYSIS \_\_\_\_\_ YRS PROGRAMMING \_\_\_\_\_  
MACHINES USED \_\_\_\_\_  
LANGUAGES USED \_\_\_\_\_  
SALARY \_\_\_\_\_  
SALARY REQUIRED \_\_\_\_\_  
JOB SOUGHT \_\_\_\_\_  
REF No \_\_\_\_\_

**DATA RESOURCES AGENCY** FREEPOST HARROGATE  
NORTH YORKSHIRE HG1 5BR TELEPHONE HARROGATE 509866

## ONTARIO CANADA

# Toronto area C.I.C.S. PROGRAMMERS

The second largest North American Retailer (Canadian Division) requires fully qualified C.I.C.S. programmer/analysts with solid C.I.C.S. and Cobol experience

Hardware  
Software

-Twin 370/135  
-DOS/VS, CICS, COBOL,  
ASSEMBLER

Location  
Salary

-Northwest suburban Toronto  
-From \$18,000.00

Career Advancement  
Assistance

-Project Leader  
-Relocation expenses-forgivable  
loan 24 months

Benefits

-Full range of company-paid fringe  
Benefits

Environment

-new office building

Must be self motivated-minimum supervision-ability to communicate with user departments, prepare documentation, instruct juniors. We have online distribution-payable systems and large P.O.S. project with in-store mini's.

You will be the back-bone of a non-regimented but progressive D.P. section.

If you fit the above description and are willing to work we would like to meet you in London this September.

Qualified applications should forward detailed resume immediately to:

K Mart Canada Limited,  
c/o Dept. 1190  
Government of Ontario,  
Selective Placement Services,  
Ontario House, 13 Charles II Street,  
London, SW1Y 4QS

London Electricity run a dual IBM 370/158 installation, supporting a large teleprocessing network of 270 terminals utilizing OS/VS1 and CICS.

Rapid expansion and internal promotion have now created the following vacancy:

## SENIOR OPERATOR

Candidates should have a minimum of two years experience in an IBM 370 environment using OS/VS1 and should ideally have some knowledge of a multi-cpu installation. The person appointed can expect to be working as part of a 2-shift system (Monday to Friday), and will be based in SE1, within easy reach of mainline stations, underground and bus routes. The position is accompanied by excellent promotional prospects, and a salary (currently under review) rising within a scale to £8,162, depending on previous experience. In addition, there are many generous benefits including good holidays, staff canteen, sports and social facilities, sick pay and pension schemes, privilege purchases, etc.

Applications for this challenging position should be submitted in writing to the Computer and Management Services Controller.

**LONDON ELECTRICITY BOARD**  
P.O. Box 74 London SE1 6NL  
(This appointment is open to male and female applicants)

**The power behind London**

## Contract Requirements

UK  
IBM OS ASSEMBLER - MIDDX  
IBM COBOL + ASSEMBLER - SURREY  
IBM OS COBOL + IMS - KENT  
ICL 2900 ANALYST/PROGS - LONDON  
ICL COBOL SFL  
TECH WRITERS - WILTS  
HONEYWELL COBOL + IDS - N. LONDON  
HEWLETT PACKARD COBOL - WARWICKS

Call Richard or Suzie on 01-491 4708

**Software Division**  
Staff Services Division of BOC Datacube and a Member of Computer Services Association

## Administrative Communications Officer

Applications are invited from candidates wishing to join British Rail as its Administrative Communications Officer. This is a new post, which forms part of BR's newly formed Internal Consultancy Services Department, and is based at London, King's Cross.

The successful candidate will be expected to oversee a number of project teams working at HQ and in the BR Regions on both conventional and more advanced studies in the administrative communications field. In particular, he or she will supervise the development of Video Word Processing applications on BR, possibly networked into BR's internal communication systems.

Candidates should be graduates with relevant development and application experience in the office automation, data processing, and/or telecommunications areas. There are extensive opportunities for career advancement in any of these fields. Commencing salary will be in the range of £7,610 - £8,781 and there are generous free and reduced rate rail travel facilities. There is also a contributory pension scheme and the benefit of existing pension rights can, in most cases, be accepted.

Applications stating age, education, qualifications and experience should be addressed to:

Headquarters Staff & Services Manager  
222 Marylebone Road  
London NW1 1JL  
(Quoting ref: BR 01)

We urgently need a significant number of experienced System Analysts and Systems Designers to work on assignment to our clients site in the Liverpool region. Experience of Accounting or Distributor Systems will be advantageous, but a good industrial background would be acceptable in addition. Ideally, candidates should be aged 25 to 35, with a minimum A level education. We offer excellent career development opportunities within the group, both in the Consulting or Turnkey Systems sectors. Ability to communicate both with users and client programming staff will be important. A wide variety of interests and absorbing projects are available at one of the largest installations in the UK. Equally, the opportunity to travel between major northern sites is available if required as part of the network systems team responsibilities. Excellent salaries are available for these positions, working with one of the UK's most dynamic consultancies.

Telephone John Wood: 0782 623665

*John Wood*

Programmers, Analysts: 4K  
Project Managers: 10 8 1/2K

Real Time . . . On Line . . . Batch . . . Networking  
Minis — Micros & Mainframes

## 20 more Vacancies Now

### Project Managers

We seek mature, experienced man managers, capable of controlling teams of between 3 and 10 staff working to agreed target schedules and meeting them. Ability to correctly assess application development time schedules will be essential. Projects are Turnkey ventures necessitating the ability to take on first-time users, handle initial design and development through to full systems and program testing, users training, full documentation development and machine installation. A past record of successful systems implementation is required. We seek key future potential managers able to produce results and both motivate and train subordinate staff during systems development. A good users manner is important. Excellent career opportunities exist for top Project Managers, or Project Leaders able to produce results and meet budget deadlines. Relocation assistance would be supplied where appropriate.

Telephone Ian Gepper: 021-454 7906

### Programmers

Our Mini & Micro Turnkey Division have a wide variety of projects currently being developed both on Honeywell Level 6 and Data General Micro Noves. Languages used are Cobol and Basic. Applications vary right across the industrial and commercial sectors. All staff work on a variety of projects and regularly change assignments within the department following completion of projects. Clients include Engineers, Stockist and Distributors, Manufacturers, Newspapers, Government Agencies and Printing Companies. We offer a wide variety of interesting and absorbing projects with good career development opportunities for motivated, company conscious staff. Machine familiarity is unimportant as training will be given to staff of interest to us, who we feel are capable of making a contribution towards the futuristic projects we are working on.

Telephone Recruitment Consultant Carol Proudman: 021-454 7906

### Systems Designers

Analyst with a comprehensive knowledge of industrial or commercial applications systems, and able to design efficient systems on Mini and Micro processors, are urgently required to participate in Turnkey projects at our rapidly developing Datacentre. Experience of designing and systems testing systems will be important, with evidence of having installed at least 3 major systems during the last 3 years. Ability to work in isolation, taking the user requirement to full programming specification will be important. Previous programming experience is essential. Ability to carry out feasibility studies and assess systems and programming development times accurately will also be important. Early promotion opportunities are available for competent conscientious Analyst with good business judgment.

Telephone Ian Gepper: 021-454 7906

## Don't Delay — Phone Today

This Datacentre . . .  
is unrivalled in the UK  
Work on tomorrow's  
technology today at



Our small ICL Turnkey development section is shortly to embark upon a significant marketing expansion and needs a number of experienced staff to support the venture. Our present in house configuration consists of an ICL 2904 with EDS 6D's plus local and remote communications via 7602 terminal processors using Cobol under MTS.

Within this section EMS are currently engaged in a series of interesting projects developing a variety of applications for Midlands clients. As part of the planned expansion we have commenced design of software development side and the development modular, interactive applications systems.

Systems Designers/Analysts, capable of Project Management responsibilities, from design through to implementation are urgently needed. In addition, we need enthusiastic and motivated Analyst/Programmers and Programmers down to junior level.

Preference will be given to candidates possessing financial applications experience and any experience with On-line/Real-time systems would be beneficial.

Help us to build the most professional ICL Support Group within the UK.

Consultant Don Watkins  
Ring 0782 623665

## Honeywell or Data General to £7,500

We have a large range of vacancies throughout the entire UK, both within EMS and throughout client installations for experienced Honeywell and Data General staff. Equally, experience of Cobol or Basic language will be acceptable for candidates wishing to convert to these new technology product ranges and the attractive salary prospects available when relevant experience has been gained. A vast range of choices is available for experienced Data Processing staff, especially for candidates with Honeywell L66 level or Data General Micro Nova backgrounds. A wide variety of project choices is available.

Equally, international travel opportunities exist for candidates interested in future Turnkey opportunities. Experienced staff should contact us without delay for application forms and early UK interviews.

Telephone Carol Proudman: 021-454 7906

Analysts	Accounting Package Systems	6-9 months
London	Commercial and Distribution Systems	1-2 years
N. West	Univac Financial and Accounting	1 year
Programmers		
London	Honeywell Level 6	6 months
London	Honeywell IDS - TDS	8 months
London	ICL Fortran	3-6 months
London	Univac Fortran	6 months
London	IBM - IMS PL/1	6-12 months
Midlands and North	Univac 1108	12 months
Midlands	ICL 2903/4 Cobol and RPG	6 months

We have a regular freelance requirement throughout the entire UK. Requirements are received on a weekly basis. We strongly recommend all freelance staff to register on our central computer system to ensure full advantages of the EMS Contract System. If we don't have your details we can't offer you the majority of contracts we never advertise.



Phone: 021-454 7906 or 0782 623665 or write to Recruitment Division: E.M.S. Data Centre, Tricorn House, Hagley Road, Fiveways, Edgbaston, Birmingham

## SPRECHEN SIE DEUTSCH

Consider a step up in living standards and career progression  
Our client in Germany is seeking additional candidates with the necessary skills for a variety of projects.

- \* IBM, 370/OS/IMS/COBOL PROGRAMMER
- \* IBM, 370/OS, COMMERCIAL PROGRAMMER
- \* IBM, CICS/DL/1, SYSTEMS PROGRAMMERS
- \* MINI/COBOL COMMERCIAL PROGRAMMER
- \* SIEMENS 7000, BS 2000, PROGRAMMERS
- \* MINI, COMMUNICATIONS SYSTEMS PROGRAMMER
- \* INTEL 8080 PROGRAMMERS
- \* PROCESS CONTROL SOFTWARE PROGRAMMERS
- \* SOFTWARE/COMPILER EXPERTISE

If you have working knowledge of German plus experience and ability in one of the above mentioned positions, then you will enjoy a rewarding future with international career prospects.

CW 30/2

## Central Computing Consultants

8A Lower Grosvenor Place, London SW1W 0EN

01-834 7105

Telex 27950 Ref. 1035



## Senior Analysts & Programmers

North West, c. £7,500

A leading electrical engineering company, part of a major British group, seeks additional Senior Analysts and Programmers as part of its planned Data Processing expansion. These plans include the installation of new equipment and the development of real-time systems. Specific areas for development are:

are Order Processing, Production and Inventory Control and Management Accounting. Duties will also include the improvement of existing computer systems. Applicants will have had experience of developing computer systems in the areas specified and should preferably have managed a small project team.

C.G. Moores, Ref: 24189/CW Senior Analysts, Ref: 24190/CW Senior Programmers

These positions are open to male or female candidates. Please telephone in confidence for a Personal History Form to:

MANCHESTER: 061-236 8981, Sun Life House, 3 Charlotte Street, M1 4HB.

**Hoggett Bowers**  
Executive Selection Consultants

BIRMINGHAM, CARDIFF, GLASGOW, LEEDS, LONDON, MANCHESTER, NEWCASTLE AND SHEFFIELD.

## Computer Services Manager

c. £9,000

Marconi Space and Defence Systems Ltd., Europe's Number One company in the field of torpedo development, has a vacancy for a Computer Services Manager on the Sting Ray project at Stanmore.

The successful applicant will be responsible for controlling the two GEC 4082 digital computers and the Real Time Simulator currently being used to carry out scientific modelling and data analysis studies by our highly skilled teams of software programmers and engineers. The GEC 4082 computers are used in a multi-access mode and currently support a total of 32 on-line terminals and a simultaneous powerful batch stream facility.

The Computer Services Manager will control about 12 operations and maintenance staff who provide computing facilities to the project engineering teams over a two shift period. Besides controlling the existing system he/she will be expected to be involved in activities to improve the efficiency of the facility including the ability to liaise with the computer

manufacturers technical staff and to advise in extensions to the hardware.

Experience of organisation and management is desirable and it is unlikely that anyone under 28 would have sufficient experience.

This vacancy presents an ideal opportunity for a computer professional to work in our attractive setting in North West London's Green Belt. We offer a competitive salary (dependent on age and experience), a full range of fringe benefits including where necessary, relocation assistance.

Please write, with full details of your career to date and quoting reference ST/297, to Ray Leggett, Marconi Space and Defence Systems Ltd., The Grove, Warren Lane, Stanmore, Middlesex.

**Marconi Space & Defence Systems (Stanmore)**  
A GEC-Marconi Electronics Company

## HOUSE OF FRASER COMPUTER SERVICES SWINDON, WILTS

## SOFTWARE SUPPORT PROGRAMMERS

SALARY £4,500 - £6,500

RELOCATION EXPENSES — STAFF DISCOUNT — PROFIT SHARING — STAFF FACILITIES

House of Fraser have recently relocated their computer centre to Swindon in Wiltshire and upgraded their equipment from ICL System 4/70 to 2960 computers.

House of Fraser systems are currently being converted to VME/B, and the Operations department is in the process of building a Software Support section to service the requirements of VME/B users.

Applications are invited from persons with an interest in this area of computing, and in particular, from persons satisfying at least one of the following criteria:

- at least two years' commercial programming experience
- at least one year VME/B macro writing experience
- at least eighteen months' VME/B base experience
- at least two years' J1800 support experience

Applications should be addressed to:

The Operations Manager  
House of Fraser Computer Services  
The Fraser Centre, Fereday Road  
Dorcan, SWINDON, Wiltshire SN3 5HS

## IRISH RECRUITMENT FEATURE

Advertisers are reminded that the next Computer Weekly area feature will be published on August 9 and will highlight career opportunities in Ireland.

Space reservations should be made as soon as possible to:

Owen Kelly — Manchester — 061-872 4211  
Eddie Farrell — London — 01-261 8097

Copy Deadline: PM Friday before

**COMPUTER WEEKLY**  
THE INDUSTRY'S WIDEST READ AND MOST REQUESTED NEWSPAPER

IBM 370/OS  
COMMERCIAL PROGRAMMER  
SALARY TO £9,000

\* Vacancies exist for different levels of experience within a Data Base Admin. Group

\* Minimum requirement is 1 year's IMS/DB experience either with a Data Base Admin. or Systems Development Function.

\* IMS/DC experience a distinct advantage.

\* Additional training provided.

\* Contact: Sue Horner, Tesco Stores Ltd., Tesco House, Delamare Road, Cheshunt, Herts., EN8 9SL. Tel: Waltham Cross 32222 or (outside normal hours) Cambridge 871356.



## This is your opportunity to be in at the start

Planning Research Corporation is a \$250m international consultancy enterprise with Commercial, Industrial, Governmental and Military interests. The Management Sciences Group is undertaking a major expansion programme to develop the U.K., Europe and Middle Eastern markets. The first projects are underway and we have an immediate requirement for dedicated professionals in the fields of programming, systems analysis and telecommunications. Your involvement with us at this stage of our market development will provide excellent opportunities for professional growth world-wide.

**CENTRAL LONDON — IBM 370**  
We are setting up a major Cost Information System supporting, planning and budgeting for the total construction of two new cities in the Middle East. It is based on IBM 370's on site and in London.

**Programming Manager £8,500**  
Analyst/Programmer, 5 years' experience, IBM 370 OS/VS1 or VS2, TSO (with experience in writing/designing CLISTS). FORTRAN required; COBOL desirable. A Scientific or Engineering background and a degree are preferred with at least two years' in lead role over 5 or more programmers. Proven experience in systems analysis and design is required. You will be required to travel to the Middle East to perform the installation of the system.

### Team Leaders c£6,500

Programmers/Analysts, 3 or 4 years' experience. IBM 370 with OS and VS1 or VS2 required, plus FORTRAN and Time-sharing Option experience required. COBOL is desirable. A scientific background, plus degree would be useful, but not vital. At least one year in the lead role over two or more programmers needed.

### Programmers c£5,000

One or two years' programming with FORTRAN required, IBM 370 OS experience desirable.

### SOUTH EAST BELGIUM — Honeywell 6000

We are converting a large Military command and control IBM 360/50 installation to Honeywell 6000.

### Programmers/Analysts c£27,000

plus relocation  
We are looking for two years' experience on each of TDS, IDS, and COBOL. One year's systems development and programming experience with Honeywell 6000 are expected. Applicants should be U.K. nationals.  
Initial contract term is 12 to 18 months. Salary payment will be in the range of \$18 — \$20,000 p.a., plus 50% cost of living allowance. A relocation assistance payment of up to \$5,000 will be made.

### BRUSSELS —

### Telecommunications Systems Engineers and Technicians

In line with our market development we are recruiting Hardware and Software Engineers and Technicians.

We need familiarity with a broad range of telecommunications hardware and software techniques and equipment. Operational areas are communications controllers, concentrators, MODEMS, multiplexors, P.C.M. and carrier equipment; store and forward, packet switching and polling methods and disciplines. Military communications background is useful. Salaries will be highly competitive and negotiated on experience.

We are being assisted by Charles Barker-Coulthard who are conducting initial interviews.

Please write with full details, or telephone for an application form, quoting reference 962/6 to Charles Barker-Coulthard Limited, 30 Farringdon Street London EC4A 4EA. (01-236 0926)

**prc**

Planning Research Corporation International

Original 1/3/80

## Become an International Professional in the 80s

As we enter the 1980s more and more companies are seeking Computer Analysts and Programmers with overseas working experience. However, not everybody wishes to drop everything and rush off to the far end of the world for years on end.

Our client, a medium sized Software House based in London employ people who may work on overseas assignments from time to time in addition to their London and South East Client base.

Candidates who would like to become professionals in the next decade, working with a prestige company on interesting projects e.g. IBM, CICS/Dats Base systems or ICL 2950/2960 development systems, should have to have at least 3/4 years' experience of Cobol or similar machines.

Naturally with a company of this calibre conditions of employment are amongst the best for candidates with proven skill in their field.

Benefits include basic salaries to £7500, annual bonus 1/12 of one's salary. BUPA, non-contributing pension scheme, full life assurance and a flexible car scheme.

CW31/1

## Central Computing Consultants

8A Lower Grosvenor Place, London SW1W 0EN  
01-834 7105  
Telex 918582



### Development Staff

Good opportunities for IBM trained staff who have sound educational qualifications and knowledge of Local Government. The Computer Division of the Treasurer's Department is in a modern Civic Centre with many attractive staff facilities. The IBM 370/138 is disc based, most new applications involve terminals running under CICS/VS.

**PROJECT LEADERS from £6834**  
**SENIOR PROGRAMMER/ANALYSTS from £5058**  
**DATA ENTRY SUPERVISOR from £4053**

(Salary award pending)

A number of vacancies exist for junior programmers and operators with some relevant experience wishing to further their careers. There is a strong emphasis on training and opportunity for day release.

RING: A. Ramsay on 01-570 772B extension 3125  
WRITE: F. Reeves, Data Processing Manager  
Borough Treasurer's Department  
London Borough of Hounslow  
Civic Centre, Lampton Road  
Hounslow, Middlesex TW3 4ON

**Hounslow**

### SYSTEMS ANALYSTS & PROGRAMMERS

Salary up to £8,500

Small but established consultancy based on the South Coast requires Systems Analysts and COBOL Programmers to work on varied and interesting projects in the South-East. Experience with On-line and/or Database Systems with Burroughs BB00/B1800 equipment would be desirable but not essential.

Please write giving brief career details to:

G. K. Computer Services Ltd.  
Western Lodge, Western Road  
Shoreham-on-Sea, West Sussex BN4 5ND

## TENNENT CALEDONIAN BREWERIES LTD

### Systems Manager

The Company is the Scottish operating Company of Bass Ltd., which has an ambitious development programme based on Univac mainframe computers with V-series minis currently being installed in regional locations.

The successful candidate will be responsible to the Company's Financial Director for providing and expanding the systems service to the Company. This will include responsibility for all data preparation and input to the Group's mainframe machines, the introduction of mini-computers and the control of a team of Commercial Analysts and the O & M department. There will be close liaison with the Group's central computing function and a contribution will be expected to the overall computer planning process. The post will be based in Glasgow.

Applicants should be in the age range 30-45 and have a degree or accounting qualification as well as membership of a professional computing body. A minimum of six years' practical experience in computerised business systems and O & M must be supported by at least two years' proven management responsibility.

This is a senior management position carrying an attractive salary and fringe benefit package. A Company car will be provided.

Applications in writing should include brief details of education, experience, age and current salary and should be addressed to:

Mr. Kenneth Donald, Personnel Manager

110 BATH STREET GLASGOW G2 2ET

### Systems Analyst/Programmer

Rural Worcestershire

IMI Summerfield, a member of the IMI Group, carries out research into and development of solid propellant rocket motors. It is situated in a rural part of Worcestershire about two miles south of Kidderminster.

The position is within the Computer Section of the Rocket Motor Design and Development Department.

The successful candidate will be working on an extensive range of projects covering a wide variety of scientific disciplines or management control systems. Candidates will ideally be qualified to a minimum of HNC, together with experience of programming and/or systems analysis. The preferred programming languages are Fortran 4 and/or Assembler but this is not essential.

Prospects are first class, there is an attractive starting salary commensurate with age and experience, plus other benefits.

**PER**  
Professional & Executive Recruitment

Contact: Barbara J. Blume, Recruitment Consultant  
Telephone 021-236 6971, PER Divisional Office  
Fountain Court, Steelhouse Lane  
Birmingham B4 6DS

Applications are welcome from both men and women

### Contract Requirements

**PL/1**

IMMEDIATE REQUIREMENTS: OOS & OS  
LONDON - KENT - PETERBOROUGH - HANTS  
Call Richard or Suzy on 01-491 4706



Staff Services Division of BOC Datacube and a number of Computer Services Association

### EXPERIENCED COMPUTER OPERATOR

SOUTH COAST

required for an IBM System 34. The position entails working to strict deadlines, and includes responsibility for supervising 3 data input operators.

Applicants should have a minimum of 18 months' operating experience, preferably on IBM equipment, and have the ability to take sole responsibility for the operation of the system.

Salary will be commensurate with experience, and other benefits include pension scheme and subsidised canteen.

Telephone Sally Elkins on Havent (0706) 488221 for application form.  
**BUTTERICK FASHION MARKETING COMPANY, NEW LANE, HAVANT, HAMPSHIRE.**

### FORTAN

ENGINEERING  
SCIENTIFIC BACKGROUND  
CONTACT US, THE SPECIALISTS IN THESE FIELDS

We urgently require Programmers with experience of Fortran, Assembler, Cobol or Basic for Real-time Applications.

Jobs from £3,500 to £8,000 in all areas. Please send for a free list of vacancies.

Capital Appointments, 28-30 Wilton Street, London W1  
Telephone 01-457 8861 (even) 01-457 8862 (day)

## GLOUCESTERSHIRE ASSEMBLER & FORTRAN?

£6,500-£8,500

You've got at least three years' experience of ASSEMBLER on minis or micros plus some high level programming experience, preferably FORTRAN.

You want a more challenging role at the forefront of technology, more responsibility and a good salary in so attractive part of the country.

You'll work in a small team developing software for a new electronics product based on the INTEL 8085 microprocessor, and you'll progressively assume responsibility for the total software package.

N.B. Naturally you will be relocated by the Company.

For further information please contact MARK IRENS quoting reference CW/020B/1.

HUTTON EXECUTIVE SELECTION LTD.  
HUTTON HOUSE,  
HUTTON STREET, LONDON EC4A 3HP.  
TELEPHONE: 01-553 7141 (24 HOURS)

**Hutton**  
SPECIALIST RECRUITMENT CONSULTANTS

## D. P. MANAGER

To: £10,000 p.a. + Bonus

## and RPG II and/or COBOL PROGRAMMER/ANALYSTS

To: £8,000 p.a.

West London - Nr. Kingston

Experience on: IBM SYSTEM 3  
or UNIVAC 90  
or ICL 2903/4...

Experience of: On-line Systems  
Commercial Applications  
Manufacturing Applications  
Stock Control  
Distribution... qualifies you for an exciting and rewarding future with a small but fast growing privately-owned company.

The top job will be taken by an experienced D.P.M. seeking a change for more challenge and responsibility or a SENIOR ANALYST/PROGRAMMER seeking his first step into management. In either case, you should have a wide commercial and D.P. background coupled with a strong desire to succeed in a management role.

First-class Programmer/Analysts with 2 to 3 years' experience of RPG II and/or COBOL programming and some systems design experience are required to join this small but enthusiastic department to develop and implement new on-line systems.

For an immediate interview ring or write JIM FORT quoting reference CW 020B/2.

HUTTON EXECUTIVE SELECTION LTD.  
HUTTON HOUSE,  
HUTTON STREET, LONDON EC4A 3HP.  
TELEPHONE: 01-553 7141 (24 HOURS)

**Hutton**  
SPECIALIST RECRUITMENT CONSULTANTS

## REAL-TIME PROGRAMMERS FOR THE PRINTING INDUSTRY

coltec

TO £7,000 P.A.

NEAR LIVERPOOL STREET STATION

Our Client, Coltec Data Systems Ltd, an industry leader in the design and manufacture of advanced computerised typesetting systems for the newspaper and publishing industries, require two additional real-time Programmers to join their small but enthusiastic team of software professionals to develop and support typesetting programs.

The ideal applicant will have had approximately two years' programming experience in an Assembler language on real-time systems combined with some in-depth knowledge of mini-computers. Experience of an Algol-type language would be an advantage.

Coltec currently use D.E.C. and Texas Instrument's mini computers as their base hardware and future plans are sure to include the use of new microprocessors.

This is an exceptional opportunity for Programmers to advance their career in a specialist area. The salary and benefits package are exceptional and the company environment is small and friendly.

All interviews will be conducted by our Client. However, in the first instance, please ring or write to JIM FORT for an application form quoting reference CW 020B/3.

HUTTON EXECUTIVE SELECTION LTD.  
HUTTON HOUSE,  
HUTTON STREET, LONDON EC4A 3HP.  
TELEPHONE: 01-553 7141 (24 HOURS)

**Hutton**  
SPECIALIST RECRUITMENT CONSULTANTS

# COMPUTERS COME ALIVE AT LEYLAND

Based on a massive investment Leyland Vehicles are launching a major drive to maintain supremacy in the truck, bus and tractor markets.

Inspired systems development, and the ambitious men and women who originate and implement it, will be an essential part of this unique challenge - their innovative ability can guarantee us the long-term competitiveness we need.

The first phase is an investment of £32 million for the construction of an ultra-modern assembly plant incorporating much of the latest computerised manufacturing technology. The mainframe is an IBM 3031 with on-line systems and telecommunications to other plants and operates under

OS/VS1 programming in COBOL/PL1 and ASSEMBLER. There are also HP 3000 and HP 1000 mini computers in on-line systems for process control work in systems for goods receiving, warehousing, assembly line control and dynamometer/vehicle testing. Eventually 5 mini computers will be used in the assembly hall and the whole system will soon be going live.

In addition major developments are planned in other commercial areas such as purchasing, personnel, finance and payroll.

Although we're going to be looking for a much wider range of computer personnel in the future, these are the people we need right now:

### Project Co-ordinators Senior Analysts Analysts Programmers Operators

The sheer size of this project - not to mention its emphasis on high-level software - makes it one of the most significant career opportunities in any industry. In addition to invaluable experience in data systems, distributive processing, on-line networking and the process control of mechanical equipment, we can also offer you scope for advancement in either technical development or management.



Financial rewards? The salaries range up to £7,000 p.a. and a full range of benefits includes a productivity bonus scheme, a preferential car purchase scheme and management car plan for senior vacancies with generous relocation assistance wherever appropriate.

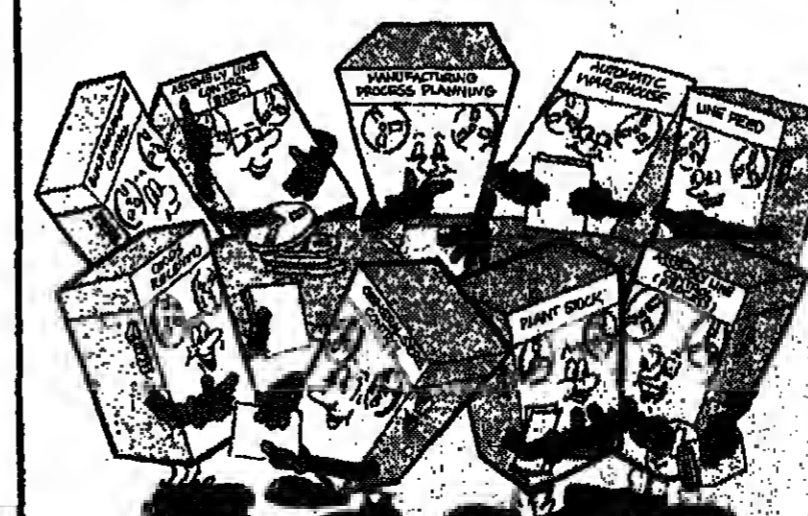
Where are we? We are situated at Leyland in the north west of England in pleasant countryside just off the M6 Motorway. We're convenient for major northern cities, the coast and the Lake District. There is also an excellent standard of readily available housing at moderate prices in the area.

Phone Steve Maslarczyk on Leyland 34419 or if this is not possible write with full details to:

Mr S W Maslarczyk, Staff Planning Adviser  
Personnel Department  
King Street, Leyland, Lancs.



**Leyland Vehicles**



01-553 7141

## MYRIAD

## SYSTEMS ANALYST

IMPART YOUR KNOWLEDGE TO OTHERS

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CIRCA £8000

Our Client, a leading Computer Services Organisation, is seeking additional staff to join their team of D.P. Professionals primarily in a Lecturing capacity. Experienced Analysts with enthusiasm and proven communication skills are required to assist in the training of personnel for both the Public and Private Sectors of Industry, using well established techniques. In addition to lecturing the successful applicants will be required to advise attendees, prepare new course material and generally support our Client's operation.

When not actively involved in training, candidates will be engaged in Consultancy roles and should therefore possess skills in Systems Analysis and preferably have experience of at least one of the following: mini computers, COBOL, BASIC, PL/1, DOS/VS, Database or On-line Systems. A minimum of three years in Data Processing is essential.

These are Senior Positions in a highly successful organisation. The company offer a good pensions scheme, expenses and salary in keeping with a Senior Position.

Ref. SE1/0208

MYRIAD APPOINTMENTS LIMITED Computer Personnel Consultants  
Telephone or write to:- 30 Fleet Street London EC4Y 1AA 01-353 0981 (24 hrs)

## Software Engineers for MPU Process Control Systems

I'm sure you've heard a lot about the success of the high performance Eurotherm International Group. Well, Turnbull Control Systems is its youngest member company. We are growing fast and rapidly winning a big reputation for advanced control systems with emphasis on computer supervised plant instrumentation — for example, our Matic 16350 single loop microprocessor based process controller which we brought to market recently.

degree in an appropriate subject and at least five years' relevant industrial background.

I'm looking for self-motivated as well as well-qualified people who will form the life blood of a company where outstanding performance is rewarded with an exceptional salary together with the career prospects that only a rapidly growing organisation can offer. You would be based at our Goring-by-Sea headquarters, in a particularly pleasant area of Sussex and we would pay all your relocation expenses.

If you believe the specification I have outlined fits your circumstances and requirements, then I will be delighted to hear from you.



Dr. N. P. Lutte, Tech. Dir., Turnbull Control Systems Limited  
Mulberry Lane, Goring-by-Sea, Worthing, Sussex  
Tel. (0903) 503041

## Group Systems Controller

c. £7,500

Pandair Freight, one of the world's leading airfreight forwarders has a challenging opening for a Group Systems Controller to report to our Group Systems Manager.

The main functions of the job are to provide specialist knowledge of current systems and technology, possess the ability to identify further areas of potential and the acumen to project lead future developments using external consultancy personnel.

The person appointed will possibly have been a Systems Analyst/Programmer who has had experience of both accounting/financial and real time communications systems and who can demonstrate this experience by involvement at a senior level on at least one major project.

Experience of DEC 11/70 equipment using RSX-11M and BASIC+ 2 would be an advantage as would a knowledge of air-freight procedures although training will be given.

This is an excellent opportunity for someone to develop their business career through exposure to commercial and business activities as Project Leader for future developments, whilst using their technical skills in a supporting role.

The position may well involve a degree of international travel in the long term. Implicit in the above is the necessity for numeracy, literacy and the ability to produce concise reports to senior management.

The person appointed is unlikely to have this experience and confidence required under the age of 28. In return we offer an attractive salary, an excellent pension scheme, four weeks' annual leave, a friendly, modern working environment, an active sports and social club and benefits associated with a member of the P & O Group.

Applicants are invited to apply with full details to:  
C. J. Repley, Personnel Manager, Pandair Freight Limited, P.O. Box 52,  
Breywick House, Breywick Road, Maidenhead, Berkshire.

**Pandair**  
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## Cobol in Mid-Sussex

We are the largest supplier of edibo file and also in the UK. Our modern, purpose-built offices in Burgess Hill (10 miles north of Brighton) house all control Management and Administrative functions.

We need additional programmers to join a highly skilled team working on most commercial systems. The hardware employed consists of large ITEL AS/6 machines (IBM 360/370 equivalent).

Development is via COBOL, PL/1, RAMIS and other techniques including ON-LINE.

A network of HP/3000 MINI-COMPUTERS is currently being installed to complement our already wide variety of applications and to link them with other locations. New developments will primarily use interactive and distributed systems techniques.

Requirements are for COBOL Programmers with at least 2-3 years' experience on IBM/OS machines. Training will be given in the other techniques required.

Attractive starting salaries will be offered to the candidate meeting our requirements, together with the benefits associated with a company in the Unilever Group.

Please write or telephone for an application form:



Margaret Holmes, Van der Berghs and Jurgens Limited  
Sussex House, Burgess Hill, West Sussex RH15 5AW  
Telephone: Burgess Hill (04448) 46300 ext. 2288

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## HAZELTINE LTD. PERIPHERAL SERVICE ENGINEERS

We are currently seeking engineers at all levels of experience, trainee to senior, to service our customer base both in the field and at central offices.

Salary will be commensurate with experience and some positions carry a company car. All engineers wishing to advance their careers into computer communications with a market leader should contact by letter or telephone:

Mr. R. Avia, Service Manager, Hazeltine Ltd.  
Terminal House, 14 Peterborough Road  
Richmond, Surrey. Tel: 01-848 3111

## WEST COUNTRY Opportunities available in AVON, GLOS, WILTS, DEVON SOMERSET & DORSET

We have been appointed by a number of Computer Users and Software Houses in this area to find particularly good staff for their companies — Here are some of the vacancies —

**CHIEF PROGRAMMER — ICL PLAN/COBOL** To £7000

**SYSTEMS DESIGNERS (2) — COMMERCIAL** To £6000

**SYSTEMS ANALYST — UNIVAC COMMERCIAL** To £6000

**SYSTEMS PROGRAMMER — IBM 4380** To £6000

**RECRUITMENT CONSULTANT — GENERAL DP** To £6000

**PROGRAMMERS (2) — COBOL/PL1 to £3000**

**JUNIOR PROGRAMMER — COBOL — 1 YR** To £4000

If you would like to be sent details of these vacancies or of other opportunities in the West Country please telephone or drop us a line.

**WALKER-WESTON EXECUTIVE RECRUITMENT**, 1 Smith House, George Street, Nailsworth, Stroud, Glos. GL8 3AA. Telephone: Nailsworth (04568) 4124 (9-hour answering service)

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We need several

## SYSTEMS AND PROGRAMMING CONSULTANTS

NOW join us to undertake projects with our major clients in the Midlands area.

Career prospects with this small friendly company are excellent, and we can offer you —

\* Company car (or generous expenses in lieu)  
\* Salary £8,000-£8,500  
\* Pension scheme

If you have 5 years' sound systems experience, or slightly less for junior positions, you may be the person (male or female) we are looking for. A degree or H.N.O. would give you a head start, but is not essential if you have the right background.

We particularly require people with DEC POP11, MACRO 11 and RSX experience.

It is unlikely that persons under the age of 25 will have had the necessary experience for these positions.

Finally, if you cannot match the above experience, but are disappointed with your present position, we have a placement service covering all areas of all levels, entirely free of charge to yourself.

The contact for the vacancies, or placements is:

Mrs. Aokland (phone 021-843 7523)  
**LAWRENCE CONSULTANCY CONTROLS LTD.**  
Chilter House, 33/34 Paradise Street, Birmingham, B1 2AJ

## The University of Sussex

### Programmer (Male/Female)

A programmer is required to work in a small team on the development of data processing systems for the Administration. Applications are invited from experienced programmers preferably graduates who are interested in getting results and providing user satisfaction over a wide range of systems. Programs are written in PL/1, COBOL and Fortran and run on an ICL 1904S under Geac 3. This machine, however, is due for replacement during 1980.

The appointment, which can be either full-time or part-time, will be a temporary one in the first instance. Starting salary will be not less than £4,700 p.a. by 1st October 1979 for a full-time appointment, or pro rata part-time.

Application forms from the Staff Awards and Recruitment Office, Sussex House, University of Sussex, Falmer, Brighton, BN1 9QH. For further information telephone Brighton 08776, Ext. 408.

## CROYDON COLLEGE

Part-time Lecturer in Computer Studies

Applications are invited from suitably qualified persons for the following post, due to commence 1st September 1979.

## PART-TIME LECTURER IN COMPUTER STUDIES

Full-time day and evening lectures are required to teach computer programming systems and computer applications. Teaching of commercial courses is also required. Further details and application forms may be obtained from the Vice-Chancellor, to whom completed forms should be returned within fourteen days of the appearance of this advertisement.

## THE CITY UNIVERSITY Department of Computer Science SRC RESEARCH STUDENTSHIP

Applications are invited for an SRC Research Studentship to investigate Braille translation. This project, in collaboration with the Royal National Institute for the Blind, aims to produce a low-cost office machine capable of accepting typewriter input, and forming Braille on a refreshable Braille display.

Candidates would normally be required to have a good Honours Degree in computer science or electronics.

Applications, together with the names of two referees, should be submitted as soon as possible to: Dr. G. N. Dowling, Department of Computer Science, The City University, Northampton Square, London, EC1V 0HB, from whom further particulars may be obtained.

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Rates from £265 per week

Programmers	DOS/VS, COBOL + PL/1	W. London
System Designer	DG NOVA, RDOS + CAM	S. Coast
Analyst/Programmer	OS, PL/1 with TSO	W. London
Designer/Programmer	CA Syle, Sybol	Berkshire
Programmer	OS, COBOL + IMS	Kent
Analyst/Programmer	OS, COBOL	Kent
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Senior Programmers	PDP11, MACRO11, RSX11M	Kent

Business Analysts — Finance — City — Long Contracts

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# Computer controlled telephone systems U.K. and Holland

A large order from Saudi Arabia for the manufacture and supply of computer controlled telephone systems has confirmed Philips position as one of the world leaders in this field.

This, plus enhancements and additions to the range of switching systems has created vacancies within the international development team working on these systems. Opportunities exist at the U.K. base in Malmesbury, Wiltshire, where laboratories of Philips Telecommunications and TMC are located and at the Dutch headquarters of Philips Telecommunications in Hilversum.

The development effort extends into the fields of space and time division switching, local and trunk applications, the integration of microprocessors and network maintenance and management centres.

The following staff are required to work in the area of real time telephony application, basic operating system design and general support tools.

## Systems Programmers

At least 2 years programming experience is required. Experience on small computers and/or control systems would be advantageous.

## Programmers

Applicants should be either recent graduate level or from a course with a large computer content of programming experience in a high level scientific language.

## Software Systems Designers

At least 4 years experience in real time or control systems software design is essential. Telephony or Telecommunications experience would be an advantage.

## Locations

Malmesbury is situated in the north west of Wiltshire only 5 miles from the M4 and within 1½ hours driving time to London. It is a thriving town of historic interest which also offers all the amenities of a modern community.

Hilversum is located approximately 20 miles east of Amsterdam. The Dutch vacancies can be filled either on a permanent basis or on a three/four year contract basis.

The Company offers benefits in line with those of an International Group, including subsidised canteen, sports and social club, staff purchase of group consumer products and where appropriate, generous relocation expenses.

Please ring Malmesbury 2861 Ext. 266 for further details or write with full details of career progression, quoting reference (H.C.), to the Recruitment Officer, TMC Limited, Swindon Road, Malmesbury, Wilts.

**PHILIPS**

## Computer Manager

£4800-£5200 (pay award pending)

To manage a small team of Computer Technicians at North East Surrey College of Technology, Reigate Road and supervise the day to day running of a UNIVAC V78, twelve terminal multi access system providing a service to the college and local schools. You should be a competent programmer who wishes to gain management experience whilst continuing to develop programming skills. Some knowledge of block structured languages would be an advantage. This post is open to men and women, offers responsibility as well as an opportunity to maintain technical proficiency.

Application form from the Chief Administrative Officer at the College. Tel: 01-384 7731

**SURREY COUNTY COUNCIL**

## University of Bristol Department of Economics

### Research Assistant in Computing

The Department houses a POP 11/04 RST/E computer which is used to provide interactive teaching facilities. The Department also has several terminals connected to the University's MULTICS computer for use by staff in their research.

The research assistant will maintain and develop software and assist staff and students in using the system and writing their own programs. Candidates should preferably have experience of RST/E and being Basic and Fortran in the Social Sciences.

Salary, depending on age, qualifications and experience, on research grade 1A, at present £1225 to £148 per annum. The research assistant may be required for academic duties.

Further particulars may be obtained from: The Registrar and Secretary, University of Bristol, Spence House, Bristol, BS8 1TH, to whom applications should be sent by 15th August 1979 (please quote reference 22).

## UNIVERSITY OF YORK Department of Computer Science

### ELECTRONICS TECHNICIANS GRADE 5

Applications are invited for the above post to assist staff and students in their teaching and research activities. The post principally involves designing, constructing, testing, and maintaining electronic equipment in the department's laboratory.

Applicants should have some experience of digital electronics, and an appropriate qualification. No knowledge of specific computer systems is required as training will be given.

Salary for Grade 5: £3 474.54 p.a. (under review)

Applications in writing, giving the name and address of two referees and enclosing the post to which the application refers, should reach the Deputy Bursar, University of York, Heslington, York YO2 9HE, by 15th August 1979.

# ANALYSTS PLUS

We are a major insurance broker with world-wide interests and are embarking on the development of new, large-scale systems based on a distributed network of VDUs and minis linked to a 370/138. Of equal importance is the development of the associated clerical and business systems which the computer systems will support.

These developments will be undertaken by a number of project teams and we need to recruit experienced systems analysts to work at a senior level. In addition we are prepared to consider less experienced analysts, or programmers wishing to move into analysts. These analysts will have the opportunity to progress to more senior levels. The successful applicants will be based in the City of London or Kingston-upon-Thames.

Salaries for the more senior positions will be in the region of £7,500 per annum. We also offer a non-contributory pension fund, employee share scheme, LVS, staff restaurant, a sports and social club and season ticket loan facilities.

To discuss these opportunities further contact Malcolm Honey at:

Stewart Wrightson, Kingston Bridge House, Church Grove, Kingston-upon-Thames, Surrey KT1 4AG.

or Telephone 01-877 8888.

**Stewart Wrightson**  
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## CITY OF SHEFFIELD

### CITY TREASURY

#### Computer Services Division

#### SENIOR PROGRAMMERS AND PROGRAMMERS

The City Council has decided to replace its ICL 1904s (1978) by an ICL 2960 (2M) in November 1979 followed by an ICL 2972 (4M) in January 1981. During this period both GME and VME/8 will be in use.

Applications are invited for the undermentioned posts to assist in the transition to the new equipment. This is an ideal opportunity to take part in the commencement of an exciting conversion and development programme. ICL 2900 experience, although advantageous, is not essential as a comprehensive training programme is scheduled.

#### SENIOR PROGRAMMERS

(Grade S01/2) — £5,232-£6,080 (including supplement)\* Candidates must be capable of supervising other programmers within a project team and a working knowledge of George 3 will be an advantage.

#### PROGRAMMERS

(Grade T4/5) — £4,245-£5,073 (including supplement)\* Candidates should have at least one year's experience in COBOL programming and must be able to demonstrate the ability to produce soundly-structured working programs to predetermined schedules.

\*Pay award pending from 1st July 1979.

Letters of application giving full details of qualifications, background and experience, together with the names of two referees, should be sent to the Chief Personnel Officer, Palace Chambers, Pinstone Street, Sheffield S1 2HN by 13th August, 1979. Please quote ref. CV.

## STRATHCLYDE REGIONAL COUNCIL

### GLASGOW SUB-REGION

#### ROAD DEPARTMENT

#### ENGINEER

78 Queens Street/Broomfield Traffic Control Centre Salary Scale - A.P. 1/V - £5581-£8088 Pacing according to qualifications and experience.

Applications are invited from Graduates in Civil Engineering or Computer Science for the above post.

The person appointed will be involved in the maintenance and development of real-time software for Urban Traffic Control System based on dual Merconi Myriad Computers (user code) with associated work using terminals to Honeywell 800/8000.

He/she will also be required to liaise with the Engineering staff responsible for the use of the software and to advise and assist them as necessary. Major extensions to the traffic control system are planned and the successful applicant will be involved in the design and development of the new system.

\*This salary range is inclusive of supplement.

Application forms may be obtained from the Assistant Director of Manpower Services, 21 Gordon Street, Glasgow G1 3PS, to whom completed forms quoting Ref. G2005, should be returned by 18th August, 1979.

A. M. G. McCulloch  
Director of Manpower Services

## STILL NOT PHONED?

### COBOL-PL/1

#### PROGRAMMERS

I am waiting for your call. Don't delay!

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Entrance hall, sitting room, kitchen,

fireplace, 2 bedrooms, modern bath

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Salary Analysts up to £6750

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DEPARTMENT OF  
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Programmers  
(2 POSTS)

## Program Adviser

(3420-£3834 plus £312 supplement)

To support staff and student use of a DEC 20, a PDP 11/40 (graphics machine) and Data General Nova. The former posts require knowledge of at least one high level language (e.g. Fortran, Basic) and expertise of computing in a different discipline (e.g. Engineering, Science, Economics). The latter post requires knowledge of at least one high level language and the ability to communicate with and assist users. One of the Applications Programmer posts is based at the Clifton site while the other two are based at the City Centre site.

Further information and form of application from the Assistant Director and Chief Administrative Officer, Trent Polytechnic, Burton Street, Nottingham NG1 4BU.

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## MYRIAD

ANALYST/PROGRAMMER → SYSTEMS MANAGER  
IBM SYSTEM 3 → IBM SYSTEM 38NEAR  
HIGH WYCOMBE

c£7000

Our client, the UK based member of a large international group, are about to embark upon a new era of computer systems development involving the installation of new hardware and supporting on-line systems. A very interesting opportunity has arisen for a forward thinking analyst/programmer to become an integral part of this period of growth and help provide the expertise to sustain this development.

Candidates for this position should possess a sound RPGII programming background with the ability to lead systems development. The successful applicant will be offered the opportunity to progress into the role of Systems Manager and will be given the necessary training in new software and on-line techniques in readiness for the installation of the IBM System 38.

The commencing salary will be negotiable and is dependent upon experience. The company offices are located in a very attractive rural setting and the company will offer favourable relocation assistance for this appointment.

Ref. NW2/0208

MYRIAD APPOINTMENTS LIMITED Computer Personnel Consultants  
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You'll have the opportunity to develop its potential by working with an IDMS database interfacing with a Cortez transaction processing system and supported by an ICL mainframe.

Plans are under way to expand these systems, and as a result we need experienced Systems Analysts, Programmers and Systems Programmers.

**SYSTEMS ANALYSTS**  
UP TO c. £7,000  
**PROGRAMMERS**  
UP TO c. £6,000



We are one of Britain's major manufacturers in the Aerospace Industry, producing commuter aircraft, and a wide range of guided missiles and aero-components, so naturally we have to make use of the most advanced technology available.

Because of this, we value our staff highly and reward them accordingly.

If you want the chance to work on live database and transaction processing systems, begin by sending us your CV.

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**PRINCIPAL LECTURER  
OR SENIOR LECTURER  
IN COMPUTER STUDIES**  
Applicants should be graduates in Mathematics or Computer Science with a minimum of 3 years' experience in the field of computer studies. They should also have experience in the use of computers in the field of research and development. The successful applicant will be responsible for the teaching and supervision of students in the field of computer studies. They will also be responsible for the development of new courses and the supervision of research and development work. The successful applicant will be offered a competitive salary and a pension scheme. Applications should be sent to the Director of Studies, Sunderland Polytechnic, 100-102, Roker Road, Sunderland, Co. Durham, S.S.16 5PU. Tel: 0191 296 1100.

**Southampton University**  
Faculty of Mathematics  
Department of Mathematics  
and Computer Studies  
**LECTURER**  
Applicants should be graduates in Mathematics or Computer Science with a minimum of 3 years' experience in the field of computer studies. They should also have experience in the use of computers in the field of research and development. The successful applicant will be responsible for the teaching and supervision of students in the field of computer studies. They will also be responsible for the development of new courses and the supervision of research and development work. The successful applicant will be offered a competitive salary and a pension scheme. Applications should be sent to the Director of Studies, Southampton University, 100-102, Roker Road, Southampton, Co. Hampshire, S.S.16 5PU. Tel: 0191 296 1100.

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For this challenging position, candidates should have an Upper 2nd class Honours Degree or equivalent additional experience.

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# INTERNATIONAL MARKETING (MIDDLESEX)

My client is an American-owned multi-national with diverse product interests and highly skilled management. Throughout the world sales are made through a tightly controlled distributor network, and consequently the Headquarters operation is a highly efficient, low overhead function, comprising a small and highly proficient team.

The operation is truly international, having responsibility for all markets, apart from the U.S.A. As a result, candidates for all jobs

must be willing to travel and be prepared to spend around 30 days a year out of the U.K. principally in Europe and U.S.A.

All the positions are based in West Middlesex and carry a company car. Other benefits include membership of B.U.P.A. and a good pension and Life Assurance Scheme (contributory).

Enquiries and applications to: A. P. BAKER, 01-499 4501 or write to me at the address given below.

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**THE TASK:**  
To support the distributors in their selling and installation work, with particular emphasis on early implementations of new products, and to generally provide a project management capability with reference to software products.

**YOUR BACKGROUND:**  
Several years practical experience at the "sharp-end" with a vendor and sound knowledge of IBM communications software and operating systems.  
Ref: RW29/1

## PRODUCT SPECIALIST-WORD PROCESSING C.£7,500 + Car

**THE TASK:**  
To provide product support to the distributor network. For hardware, to organise training down to chip level. For software, to provide operational feedback. General pre- and post-sales activity, and support of early installations.

**YOUR BACKGROUND:**  
Broadly based practical experience in both pre-sales and post-sales roles.  
Ref: RW29/3

## SYSTEMS ENGINEER - HARDWARE C.£7,500 + Car

**THE TASK:**  
To successfully introduce selected new products to the distributor network, including product familiarisation, distributor training and machine performance evaluation.

**YOUR BACKGROUND:**  
Educated to degree or H.N.D. Level, and practical experience in design or a senior Field Service role or Product Support.  
Ref: RW29/2

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**THE TASK:**  
To provide pre-sales and post-sales support to the distributors with particular reference to the overall systems approach. To assist in new product specifications.

**YOUR BACKGROUND:**  
Knowledge of — and preferably practical experience in — Data Communications and Mini-Computers. An interest in Micro-processor technology and a broadly based systems background.  
Ref: RW29/4

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CW31/2

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Salaries are very good in the range £6500 to £9500 p.a., prospects are what you make them and fringe benefits are excellent. FULL RELOCATION will be paid and there is a continuous training programme. All this and gracious living too?

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Ref. RJ 1168



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Experience to date: (Last Position First)  
Company Name \_\_\_\_\_ From \_\_\_\_\_ To \_\_\_\_\_ Hardware \_\_\_\_\_ Operating Systems/Software \_\_\_\_\_  
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RIG No.  
DATE

CW4-8/79



COMPUTER PERSONNEL CONSULTANTS

## HARDWARE PRODUCT DEVELOPMENT

West Midlands £8,000 + car

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You would produce, and support the marketing of commercial micro systems which are a well-planned extension to our client's existing sizeable and successful minicomputer business.

You should offer a background in mini/micro computer technology, and be able to develop micro systems for general commercial use from components manufactured and supplied from a highly reputable and established source.

A knowledge of operating systems, diagnostic routines, and the ability to commission completed systems including software, would be ideal. Any experience in liaison with manufacturers and customers would be very valuable.

This unique position offers the real opportunity to progress into a general managerial role as the company expands to provide commercial systems in this rapidly growing area of computing.

The company has extremely detailed and accurate plans for the future of this venture, and intends to involve the successful candidate fully in the setting up and future of the organisation.

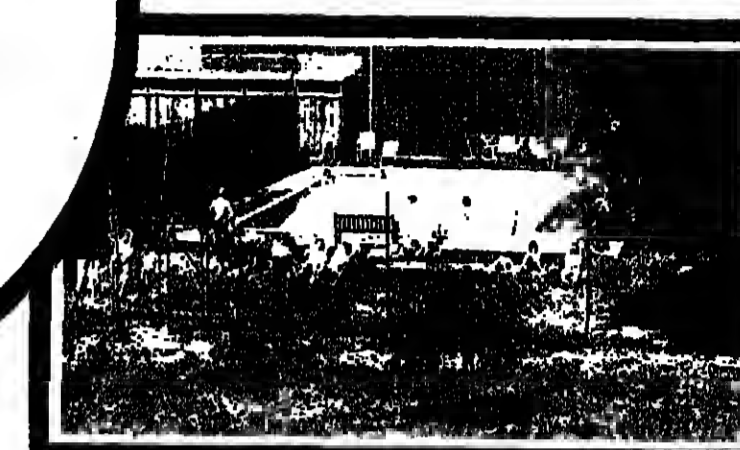
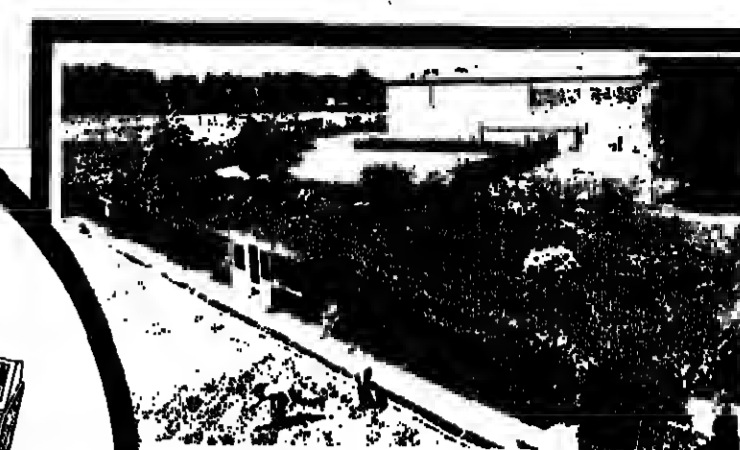
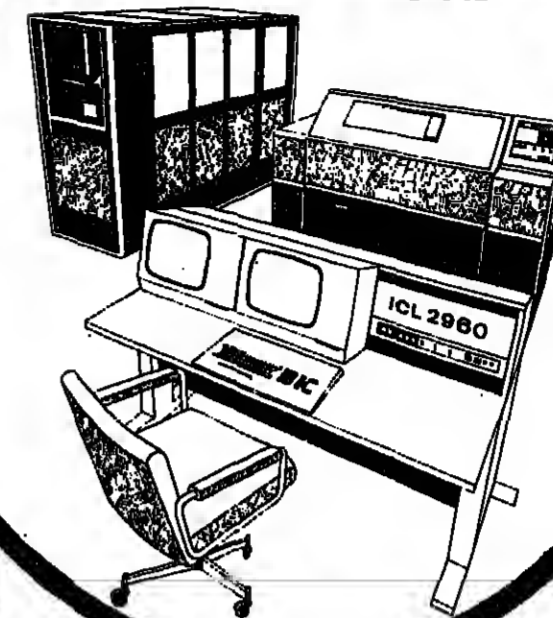
General condition, such as pensions, free sickness benefit, six weeks holiday, hardware familiarity training, and company car are well above average.

A small number of more junior posts may be available for hardware engineers with a minimum of twelve months' experience. So if your interests lie in micro systems, please contact Mike Heslop, reference CW 185 for a strictly confidential discussion.

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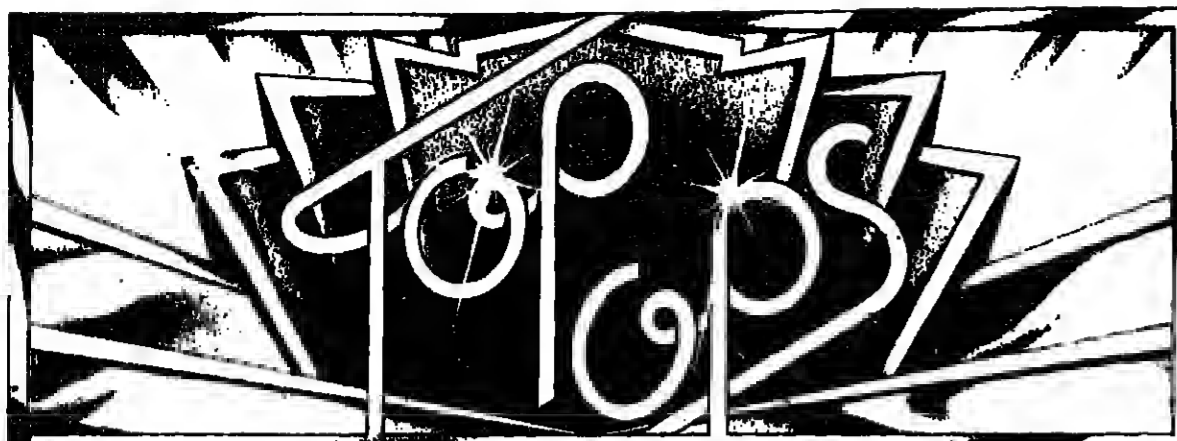
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We have recently invested over £1 million on six GEC 4080's to form the basis of a new internal bureau with 50 on-line terminals providing system development facilities for programmers developing software for a variety of military and civil applications.

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system software, design, production, testing and implementation,  
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Languages used include CORAL, FORTRAN, ALGOL, and the GEC assembler, BABBAE. The work involves close liaison with operations and programming teams with the emphasis on integrity and good communication. Experience of GEC software would be an advantage but is not essential.

We can offer you varied and demanding work in a friendly environment with excellent opportunities for promotion and personal advancement. The positions carry highly competitive salaries and benefits including assistance with relocation where appropriate.

If you think we could use your support, contact Chris Hill on 01-953 2030 ext. 3449 or write to him at Marconi Avionics Limited, Elstree Way, Borehamwood, Herts WD6 1RX. Alternatively, telephone: 01-207 3455 anytime (day or night) and we'll send you more information.

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#### SOFTWARE PROJECT LEADER £9000

Candidates for this position should be able to demonstrate proven software project leadership skills and will be offered the opportunity to lead a team developing a major new product. The ability to relate the software to the hardware will be a great asset in this role.

The Company, who are a part of a major group, are able to offer, in addition to a very competitive starting salary, an attractive benefits package and a sound career prospect with a progressive organisation.

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If you are able to offer at least two years' experience of a real-time high level language ideally CORAL 66 or ALGOL, then this is an excellent opportunity to join the software development of significant new products in the radio navigational systems area.

**MYRIAD APPOINTMENTS LIMITED** Computer Personnel Consultants  
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The CEBG requires SYSTEMS ANALYSTS/PROGRAMMERS and suitable trainees to work on Computer Control Aids for its modern power stations and system control centres.

Successful candidates will work on the design and implementation of Operating Systems, Data Acquisition and Recording, Display Packages, Direct Digital Control and Language Developments.

Though experience is an advantage for these posts, alertness and intelligence are the main pre-requisites, training being given where necessary. The posts are at our London offices located near St. Pauls.

The salaries for these appointments will be within a range:

**£5450 - £8150 pa inc.**

Please ring 01-248 1202 asking for extension 2297 or, if engaged extension 2437, as soon as possible, referring to this advertisement. Alternatively write for an application form to the Group Personnel Office, CEBG, Sudbury House, 15 Newgate Street, London EC1A 7AU. Please quote reference CW/268.



## THE SALES AND MARKETING BIT

### Getting yourself fit to sell...

DESPISE the life of luxury hotels, fast cars and fast ladies often imagined by those on the outside of selling looking in, being a successful salesman is a direct function of hard work and positive thinking within an environment which is more suited to a coronary by virtue of continual business pressures rather than recurrent Bacchanalian orgies.

Most jobs have either mental or physical demands, but the salesman, certainly in the realms of capital goods and high technology products, is exposed to both, to a significant degree. Thus his total capability needs to be much more than is normally expected of your average head-shed boffin or friendly neighbourhood milkman.

However, mental and physical condition cannot really be separated. One is very much a function of the other. Consequently, mental pressures can quickly lead to psychosomatic physical disabilities and physical ailments can soon cause depression. Conversely, a calm or exhilarated mind can bring about a relaxed or energetic body and an extremely healthy physical state can soon nullify mental stress.

Unfortunately many salesmen, particularly those over 30, appear to be completely unaware of these fairly obvious facts and how much more effective they might be if they paid more attention to their mental and physical condition. Until the salesman is able to approach the sales negotiation with a positive and enthusiastic mind, uncluttered with the garbage of day-to-day self-inflicted trivia, he is less than completely effective. Until the salesman can get up early each and every day, whatever the weather, and normally feel physically one step ahead of the game, he will never achieve his true potential.

So how is this state of fitness and tranquillity achieved? In truth the answer must be "With much dedication and difficulty, and never constantly". One's mental and physical metabolisms are interactive. Therefore it is usual that the enhancement of one is the improvement of both. So if the salesman is to make a real effort to improve his overall condition, it is best to start out with either a physical or a mental approach depending on which presents the greater ease and attraction. For one it might be Yoga or transcendental meditation, for another, squash or jogging. It is not unusual for one to lead to the other, to bring about a multiplying benefit.

There are many avenues one can explore in terms of a greater mental awareness. My only suggestion is that individuals should make their judgments on the related benefits of contemplating their inner being rather than dismissing it as a confidence trick with out having had the experience.

From a physical point of view, the opportunities and varieties of methods for improving one's condition are innumerable. However, a word of warning for those starting out on the hard road to physical fitness. Don't be in a hurry; it is not a competition; do only what you are capable of doing, rather than allow the salesman's instinct for competition to take over.

Don't start out by playing dynamic, stop-go sports like football and hockey. Squash in particular, especially in its present boom of popularity, is a real killer. Remember, you don't play squash to get fit; you get fit to play squash. Squash-court changing rooms coronaries unfortunately are commonplace. Just take it easy and aim only to improve on what you did before, no matter how marginal. Forget the next Olympic Games!

Most people in selling find their life far too demanding and unpredictable to be able to commit themselves to the disciplines of being in a given place at a given time. Consequently, courses, let alone tasks, are run on such a risk of having to be either people down. For many, jogging has become a very attractive and sensible mode to physical fitness.

Jogging is really non-competitive running where the individual travels whatever distance at whatever speed is appropriate to his or her capability. Whether or not running is interspersed with walking or stopping is irrelevant.

Apart from the highly beneficial effect on heart and lung, it has the added benefit of being totally independent of time, location, equipment, courts, pitches and other people. It is not unusual for individuals within their first year of jogging to extend their capability from an initial half-mile stager to regular runs of five miles and over. Many get so hooked on it that they even get into marathon running, an unthinkable prospect when they started out. Whatever the level of involvement, most regular joggers will tell you they never felt physically and mentally more able to cope with the rigours of day-to-day living.

For salesmen that has to be worth at least an extra couple of calls a week!

TRADER

Puzzle Answer

6 2 7 0 4  
5 3 1 8 9

## MIDLANDS VACANCIES

**COVENTRY** To £7,500 + overtime pay  
**ANALYSTS/SENIOR ANALYST**

A major manufacturer requires systems analysts for the development of a major on-line system. Knowledge of OS/MVS, IMS or OL1 and dBase.

**REDDITCH** To £5,500 + shift allowance  
**SENIOR OPERATORS/SHIFT LEADERS**

Experienced operators are required for a large control computer site. Must have experience of large IBM equipment, and be capable of looking after a huge disk base. Knowledge of RVS/IBZ, SVS/IBZ and/or VSI an advantage.

**BIRMINGHAM** To £5,800  
**PROGRAMMERS**

A progressive company is looking to expand its data processing capability and is a result needs further programmers at all levels of experience. Knowledge of PL/I, IMS, OS/MVS and/or RJE would be an advantage.

**NOTTINGHAM** £ Negotiable  
**SYSTEMS ANALYSTS**

This client needs experienced systems analysts to work on the development of new commercial systems using IBM 370s under OS/VS. Salary is negotiable according to experience.

**LEICESTER** To £5,800  
**PROGRAMMERS**

This client requires programmers of all levels to assist in the development and maintenance of on-line systems. A minimum of 18 months good experience is required. Knowledge of COBOL, IBM OS/VS and/or TOTAL would be an advantage, but training will be provided where necessary. Benefits include free transport to and from work within the Leicester area, and relocation expenses will be paid.

**LEICESTER** To £5,500  
**ANALYST PROGRAMMER**

An all-round computer person is required to take on the analysis and programming of systems in this department. Must be able to demonstrate higher ability to communicate effectively and be able to write system and program specifications. Experience of COBOL is mandatory, but knowledge of IMS, OL1 and/or production control would be an advantage.

**LEICESTER** To £5,500  
**ANALYST PROGRAMMER**

An all-round computer person is required to take on the analysis and programming of systems in this department. Must be able to demonstrate higher ability to communicate effectively and be able to write system and program specifications. Experience of COBOL is mandatory, but knowledge of IMS, OL1 and/or production control would be an advantage.

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**LEICESTER** To £5,500  
**ANALYST PROGRAMMER**

**BIRMINGHAM** £5,500  
**SYSTEMS ANALYST**

An all-round analyst is needed for an on-going business. This person must have a programming background and have implemented at least one major system. Knowledge of TPB and 7800s would be an advantage.

**LOUGHBOROUGH** To £5,000  
**PROGRAMMERS**

Programmers with 18 to 24 years' experience in COBOL are needed to work on commercial systems. Knowledge of ICL, Plan and/or GEORGE III an advantage.

**NOTTINGHAM** £ Negotiable  
**SYSTEMS DESIGNER**

This client is willing to pay an above-market salary to the right person. A systems designer with experience in PL/I and GALS for COBOL would fit the bill if he can show that he can take a problem from a system specification and finally implement it. Knowledge of ISAM, VSAM and/or CICS would be an advantage.

**COVENTRY/NOTTINGHAM/IPSWICH** To £7,000  
**PROCESS CONTROL**

We have on our books several vacancies for process control and real-time analysis/programmers. Experience is required in various disciplines such as CORAL 66, RSKIM, RIBZ, assembler on machines such as OEC, DA, Intel and PDP.

**COVENTRY** To £5,500  
**PROGRAMMER**

A programme is required by our clients to work on commercial applications. He/she must have 2 or more years experience using COBOL, and knowledge of TOL, Database, communication and/or production control would be an advantage.

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**COVENTRY** To £5,500  
**PROGRAMMER**

## NORTH WEST VACANCIES

**MANCHESTER** £6,400  
**SYSTEMS ANALYST**

Our client is seeking an experienced Analyst with a heavy background in IBM hardware and an in-depth knowledge of PL/I and COBOL. This person must have a programming background and have implemented at least one major system. Knowledge of TPB and 7800s would be an advantage.

**MANCHESTER** To £5,000  
**ANALYST/PROGRAMMERS**

Analysts/Programmers with at least 2 years COBOL experience are needed to work on commercial systems. Knowledge of ICL, Plan and/or GEORGE III an advantage.

**WARRINGTON** To £8,100 + BENEFITS  
**COBOL PROGRAMMERS**

In order to meet expansion our client requires a number of Analysts/Programmers with sound RPO II experience ideally on the IBM System 3X range. Outstanding prospects, and benefits available.

**MERSEYSIDE** To £7,800 + BONUS  
**OPERATIONS CONTROLLER**

Our client is seeking a professional Operations Controller with in-depth Operational experience which must include TP Systems and installation planning. A good knowledge of hardware and ancillary equipment is required.

**MERSEYSIDE** To £5,600  
**COBOL PROGRAMMERS**

A major UK organisation is seeking experienced COBOL programmers to work on major IBM developments in a Database CICS environment. IBM hardware knowledge is an advantage, but excellent training is available for candidates with other machine backgrounds.

**PRESTON** To £7,000  
**SYSTEMS ANALYSTS**

Our client requires a number of analysts with a range of experience from 1 year upwards. Sound commercial, distribution or manufacturing background is required. Opportunity to work on latest hardware.

**CHESHIRE** £210 per week  
**2900 CONTRACT**

Our client is seeking several experienced Contract Programmers with ICL 2900, VME/8 or ICL/IS experience. Immediate start.

**PRESTON** To £7,000  
**SYSTEMS ANALYSTS**

Our client requires a number of analysts with a range of experience from 1 year upwards. Sound commercial, distribution or manufacturing background is required. Opportunity to work on latest hardware.

**CHESHIRE** £210 per week  
**2900 CONTRACT**

Our client is seeking several experienced Contract Programmers with ICL 2900, VME/8 or ICL/IS experience. Immediate start.

**PRESTON** To £7,000  
**SYSTEMS ANALYSTS**

Our client requires a number of analysts with a range of experience from 1 year upwards. Sound commercial, distribution or manufacturing background is required. Opportunity to work on latest hardware.

**CHESHIRE** £210 per week  
**2900 CONTRACT**

**PRESTON** To £5,500 + BONUS  
**COBOL PROGRAMMERS**

Systems Analysts with in-depth design and analysis experience are required by our client. Outstanding prospects with major company.

**MERSEYSIDE** £7,000 + BONUS  
**SYSTEMS ANALYSTS**

Programmers with around 2 years experience, good salary, are required by our client currently involved in large development projects.

**OLDHAM** To £4,700 + BONUS  
**COBOL PROGRAMMERS**

Large manufacturing company is seeking an experienced COBOL programmer with some analysis knowledge to work on Correlase and TP Systems.

**OLDHAM** To £4,700 + BONUS  
**COBOL PROGRAMMER/ANALYST**

Our client requires a COBOL programmer with at least 2 years solid COBOL experience on large TOL hardware. Candidates should have some supervisory experience, and an aptitude for team management.

**MANCHESTER** To £7,000  
**ANALYSTS & PROGRAMMERS**

Multi-national company requires both Analysts and COBOL Programmers with in-depth experience on large TOL hardware. New Range experience using DBS, VME/8 and ICL/IS is a distinct advantage but by no means essential.

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**MANCHESTER** To £7,000  
**ANALYSTS & PROGRAMMERS**

## INTERESTED IN GOING DUTCH?

We are the leading Computer Recruitment Organisation in the Netherlands and have a constant need for staff who wish to relocate from the U.K.

Our clients are invariably large prestigious organisations, both users and software houses, who demand the highest standards from their employees and reward them well for their efforts.

We are currently looking for a number of professionals for an Amsterdam based software consultancy. If you are one of the following we are interested in meeting you.

### PROJECT LEADER

Must have several years Database experience.

### PROGRAMMER/ANALYST

COBOL and RPG on ICL 2903  
This is a position leading to management

### DATA ANALYST/DESIGNERS

IBM experience essential.

### PROGRAMMERS

IBM OS/VS experience + Database.

### SENIOR PROGRAMMERS

Scientific FORTRAN background essential.

All the above positions carry substantial basic salaries and benefits. We will be conducting immediate initial interviews in our London offices prior to client interviews.

To obtain further information on these positions, and to schedule your appointment, please contact Alan Whitford at Accord Computer Efficiency Ltd., Portland House, 4 Great Portland Street, London W1N 5AA. Tel: 01-637 5001, 01-637 5002. Telex: 261334 ACE UK. Licence No: SE(A) 3320.

If you would like more information on living in Holland you can telephone our Amsterdam Office direct on 010 31-20-264664 reversing the charges, and ask to speak to one of our consultants.

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0504 797616 (evenings and weekends)  
\* or write, in confidence, to above address.

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**INSIGHT MARKETING & PERSONNEL CONSULTANTS LTD.**  
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Telephone: 061-7063 87/061-7063 88

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UK AND ABROAD  
25 Upper Richmond St., London W14 8JL  
Telephone: 061-7063 87/061-7063 88

**FOR FURTHER DETAILS OF THIS WEEKLY FEATURE**  
Contact: Owen Kelly, 061-672 2243  
Basil McGowan 021-355 4839  
Mark Pulver 01-261 3174

**CONTRACT**  
**ANALYST/PROGRAMMERS**  
**INSURANCE EXPERIENCE**  
**S. COAST**  
**IBM DOS/VS COBOL**  
**CONTRACT FORTRAN PROGRAMMERS**  
**CENTRAL LONDON**

**KCS PERSONNEL**  
Knight Consultancy Services (Personnel) Ltd.  
39 Lansdown Road, Claydon CRO 2BE  
Tel: 01-688 7153/7267

**PLYMOUTH CITY COUNCIL**  
**PROGRAMMER**  
GRADE: AP.3/4 £3,732-£4,632  
(National pay award pending).

Applications are invited from suitably qualified men and women for the above post in the City Treasury.  
Applicants should have 18 months' experience of programming, preferably in PL/I. Knowledge of Assembler or RPG would be an advantage. Preference will be given to applicants who have passed, or are studying for, the examinations of the S.C.S., or who have other suitable qualifications.  
The installation comprises an IBM 370/138 operating under DOS/VS, with local and remote terminals using CICS/VS, and on-line programming using SPMOL.  
Services are provided for the City Council and four other District Councils.  
Job descriptions and application forms, returnable by Friday, August 17th, 1979, are available from City Treasurer, Guildhall, Plymouth PL1 2AA.

**THE CITY UNIVERSITY**  
**Department of Computer Science**  
**Lectureship in Computer Science**  
Applications are invited for the above post. Applicants should already have, or be completing, a higher degree associated with some aspect of computer science. (Experience with microprocessors and the organisation of computer systems will be an advantage.)  
New microprocessor laboratories for teaching and research have recently been opened. A Honeywell 66/60 is being installed in 1979 as the University maintains, and the SBC have approved additional interactive computing facilities.  
Salary will be on the scale £4232 to £8452 p.a. under review, plus £602 London Allowance. Further details and application forms may be obtained from the Deputy Academic Registrar (tel. 01-253 4390, ext. 335). Please quote ref. CS/262/CW. Closing date 24th August, 1979.

**OUT OF THE RUT—INTO OIL**  
**SENIOR PROGRAMMER/ANALYST**

Exploration Computing Limited is a computer company with a difference — expanding fast into the growing market for data handling within the oil industry.  
As part of a small, highly-qualified team including geophysicists and other specialists this key job gives ample scope for initiative and management development. The ideal candidate will have a minimum 5 years' Fortran programming experience preferably in a scientific environment. An additional advantage would be experience in systems work. We offer an interesting and growing job with diversification planned for the future. We offer a salary in the £7,000 to £8,000 range, according to experience. Pension scheme and other perks are under consideration by the company.  
Ring Alexis Givens on 01-240 2071 for an interview or send us a c.v.  
**EXPLORATION COMPUTING LIMITED**  
19 Gerrick Street  
London, WC2E 9BB



## We're looking for the graduates who are worth their weight in gold

Rank Xerox are looking for Graduates with either a business studies or computer background and the drive and ability to keep pace in the fast moving environment of the Technical Services Division in Uxbridge.  
Working in a highly creative environment you will play a leading role in the cost effectiveness of our service force; responsible for both the preparation of the statistical data necessary to manage direct service operations as well as planning future requirements for service systems and implementations.  
We offer excellent starting salaries, £4,300 for graduates and up to £6,000 with one year's experience, as well as a competitive range of benefits. And working for one of the world's leading multi-national companies your prospects really are good.  
So apply now and avoid the gold rush, contact Sue Weddell, Senior Personnel Officer, quoting reference TSD/2, at Rank Xerox (UK) Limited, Bridge House, Oxford Road, Uxbridge, Middlesex. Tel: Uxbridge 51113.

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